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REMARKS ON THINGS IN GENERAL.....No I.

BY A RAMBLER IN THE MOUNTAINS OF VIRGINIA,

With Notes by the Editor of The Farmers' Library, to whom they were addressed.

Had your Journal been restricted in its plan to the mere suggestion of experiments and of rotations in practical Agriculture, infinitely varied as these may be, according to the whim or theory of the husbandman, and to the naked statement of actual results as they turn up in the field, it would not have been practicable to maintain for it that novelty by which attention must be kept alive, or to give that value to its contents which fresh and useful facts and information only can impart, in the minds of discriminating and sensible readers. But by opening, as you have done, the wider field of agricultural economy and statistics, and inviting your readers and correspondents to explore and illustrate the great volume of Nature itself, as it is connected with the labors and wants of the agriculturist, an inexhaustible store of matter for speculation and improvement has been secured, suited to the taste and wants of all classes and conditions. With a choice of subjects, from that variety which every phase of the country presents, is it not easy for every one to contribute something to its pages? and is there not a sort of moral obligation resting on all, to reciprocate the favors of those who submit for common benefit the results of their reflections and experience? Preferring always to illustrate my meaning by analogies drawn from rural life, let me ask, what would be thought of the churl who would borrow his neighbor's hammer, and yet refuse to lend him his saw? In acknowledgment, then, of this duty, as one of your constant readers, I shall send you notes and observations connected with the agricultural condition and prospects of the regions over which my summer rambles may lead me; interspersed with appropriate extracts from books as companions, with which experience has taught me never to fail in providing myself on such occasions; and now, Sir, having introduced myself and my design, *allons*—as they say in France—let us proceed. And first, as we are speaking of books, though it may not seem to be very german to the matter of Agriculture, let us say a word about

BOOKSELLERS AND PRINTING OFFICES IN NEW-YORK AND ELSEWHERE.

A full exhibit of printing statistics in that great Emporium, would show that in no department of human industry has modern progress been more wonderful than in this. Nothing has in fact more engaged the inventive faculties of our countrymen than improvements in the *printing press*—as the great instrument for generating and diffusing knowledge: the very passion of our age, and one that while it feeds itself grows more insatiate and vigorous by indulgence. The most ingenious mechanical contrivances, propelled by the vehement power of steam itself, have been put in requisition to multiply its energies, and to enable it to supply fresh materials to satisfy the voracity of the public demand for intellectual excitement;

until, nowadays, no morning opens that does not overspread the counters of New York booksellers with new tracts and volumes—some heavy as lead, some lighter than chaff itself—and when to these are added the myriads of daily impressions of miniature and mammoth newspapers, one is at a loss to guess where lies that world of rags in which the paper-makers find their materials, and yet more the wonder is, where time and readers can be found for such a world of printed thought!

A full exposition of this branch of business would amaze the public, and is needed in exhibition of our industrial statistics. The conductors of "*Chambers's Edinburgh Journal*," and other publications of great note and value, turn out from their machines annually, as we are told, ten millions of sheets, each sheet being a book of its kind; and theirs is but "a fragment of the modern trade in literature." It would be curious to learn what is done in the same way annually by the Harpers, Appletons, Wiley & Putnam, Burgess & Stringer, Graham and others in New-York, and by Lea & Blanchard, and Carey & Hart, Philadelphia. But, Sir, is it not to be apprehended that the supply is overrunning the consumption, especially of the cheap literature—that its circulation is too exclusively confined to city populations; and that some new and more adequate facilities need to be contrived and systematized, for *distributing* the surplus over the land, as it were, and forcing it on the attention and enjoyment of the masses in smaller towns and in the country generally? It takes a disciple of Izaak Walton, like WEBSTER, to catch and cook a fish, but any lazy hulk will eat his chowder when it is *put before him*.

Under the title of *booksellers*, there is a chapter in the *Edinburgh Journal* for March last, which, if it has not attracted, I would fain recommend to, the notice of all our large houses in the "trade." And here be it said, *en passant*, that were honors and rewards bestowed in this world in proportion to the real benefits which men confer on their kind, these brothers—Harpers of your City, and W. & R. Chambers of Edinburgh—deserve to rank your mere military heroes; for while these run you through the body, *secundum artem*, in the name of "God and Liberty," those are subduing realms of ignorance and barbarism with the two-edged sword of Knowledge and Virtue; shedding a light that gives verdure and vigor where darkness had hitherto etiolated the minds of the masses. In thus referring to military heroes, be it always understood that no allusion is to be implied to *him* who was "first in war, first in peace, and first in the hearts of his countrymen;" for his warlike achievements are esteemed by the world as altogether subordinate to his *civil virtues*.

In the chapter referred to, is a brief sketch of the revolution which has occurred of late years in the system of book printing and selling, which leads the editors to recommend corresponding measures with a view to render this cheaper production available to the far greater extent of which they are satisfied it is susceptible.

"The only sure way," say these men of vast experience, is "to act aggressively on the masses. Take the bookseller's shop to their doors and firesides, and let them see and handle what is going on in the department of Literature specially addressed to them. There appear to be only two ways, say they, by which the thing could be feasibly attempted. One would consist in country booksellers greatly altering the style of their operations. Instead of laying a parcel of new tracts or cheap popular books on their own counters, and then letting them take their chance, they might either proceed themselves or send persons in their employment to call on all parties around, likely to become purchasers. If well worked, such a system would carry literature into every neighborhood, and probably extend the sale of cheap and useful books immensely; and it would have the advantage of being carried out at scarcely any expense.

"Should provincial booksellers find it inconvenient or impracticable to institute any such process, then another distributive enginery might be attempted. Small shopkeepers in the country, or in densely populated neighborhoods, might safely and profitably adventure in the trade of selling cheap and popular tracts, and so might individuals out of employment take up the business of hawking articles of this kind. A number of instances have come under our knowledge of parties formerly in wretchedness making a good livelihood by this easily-conducted trade; while at the same time they greatly extended the taste for popular litera-

ture. In a large town, where the sale of our journal could not by the usual means be raised above fifty copies, an enterprising individual, stepping beyond the bounds of the 'trade,' elevated it with ease to twelve hundred copies. In another but much larger town the sales of our publications generally have been latterly doubled, merely by a bookseller in the place having incited a few men in poor circumstances to become peripatetic dealers. These and other circumstances convince us that the process of *distributing* literature has fallen considerably behind the age, and admits of prodigious extension through the agency of a new class of tradesmen acting aggressively on the masses."

The editors of the "Journal" proceed to give instances of young men in needful circumstances, who have commenced on the smallest scale, and who have risen to be respectable stationary booksellers, and who have in turn given a start to other young men in the same way. Might not thousands find employment in this way in our own country, who, after wasting years in idleness, getting sad and sick with "hope deferred," at last give themselves up to despair and dissipation, or finally enlist as common soldiers, and perish, at home or abroad, with the rum or the yellow fever. Take your publication, Mr. Editor, for example, which ought to be read by every farmer and every farmer's son in this Union: the publishers sell it to the trade at a discount that would enable any peripatetic vender to pocket more than one dollar for every hundred. Now how many young men might at least make an honest livelihood for the nonce, and see the country at the same time, by combining the sale of THE FARMERS' LIBRARY with that of other publications.* But I should not have troubled you with this extract, were it not certain that you regard it as the bounden duty of every paper devoted especially to the agricultural interest to suggest every means that may appear feasible for distributing knowledge more diffusively through the masses, seeing how much the public liberty depends on universal enlightenment where suffrage is so universal. But to this end there is first need of a great

REFORM IN OUR SYSTEMS OF EDUCATION.

To accomplish this, our leading men of influence in society must be awakened to its importance. We must have *capable and conscientious committees of education in our Legislatures*, to take the subject to heart. Parents must be shamed, if they cannot otherwise be made sensible of their scandalous neglect of the mind and character of their own offspring. The press must enlighten and animate public sentiment. Congress must be forced to make provision to enable each State to rear up qualified instructors.† In vain shall a few enterprising booksellers, wielding the infinitely-multiplied powers of the press and facilities of publication, provide cheap literature for a *totally uneducated people*! The seed must not be scattered on the way-side, to spring up amid thorns and brambles;

[* Will the friends of the work please suggest this to any honest young man who is in need of employment, and would like to undertake it? To all such young men of integrity the publishers will supply or send six copies to any address they may designate, for \$20—to enable them to make the experiment.

Ed. Farm. Lib.]

[† The Representatives of the landed interest will be grossly derelict in their duty, and will deserve to be repudiated by their constituents until they shall have done this. See what they are doing, and wisely doing—if we must have wars—to insure greater skill and efficiency in all operations by the cannon and the sword; and would not the application of Science, provided for in like manner by the General Government, do as much for the more beneficent operations of the plow? The British Government is turning out annually 300 instructed civil teachers for Ireland: ought a republican people—propagating its principles by the sword, and inculcating hatred of monarchies—to allow them to outdo it in providing for the education of the people? Talk of Internal Improvements! The best sort of internal improvements would be to give, out of the public lands or otherwise, to each State, the means of educating teachers for schools of instruction of farmers' sons, in that which constitutes the civil part of the course at West Point—Bridge-building, Road-making, Mineralogy, Chemistry, Botany, &c.—and this is what the landed interest would soon accomplish, if they had the aid of the public press.

Ed. Farm. Lib.]

the ground must be in some measure prepared before it is sowed. Where young people are barely taught to copy

"Command you may
Your mind from play

—as in some States, where it is the great boast that all *can* read and write—there will yet exist as little sensibility to the charms of literature, or relish for informing books, as where there has been not even such a mere apology for education.

In New-Jersey, for example, a State exempt from debt, enjoying an ample income, with every resource that freedom and prosperity can afford for the perfection of her industrial and social systems—yet even in that State we have it in proof that not more than half the rising generation are known to avail themselves of the schools provided for them, such as they are; and that those who do attend them average not more than *two weeks in the year!** Now of what avail, Sir, for any intellectual or useful purpose do you suppose would be the cheapest literature to people thus schooled? It is in their most youthful days, with both sexes, that a taste for books must be imbibed, just as the young ox only is taught to bear the yoke, and the youthful dog to fetch the duck. Habits must be formed and tastes acquired while the physical and intellectual natures are yet in the course of development, and as soon as the constitution of the mind and body will take the impress you desire to stamp on it; and this eagerness for the treasure contained in books may be imparted as soon as the child can learn to read—even at four years of age—if we had books better adapted to that period and purpose.

In too many of such as have been got up for that object, the work has been addressed too exclusively and too long to the external or mere animal senses and imagination of the child. The reasoning faculties have been too slowly brought into exercise. It has not been well considered how the mind, as soon as distinct ideas are acquired, is capable of combining them, nor how language may be so let down, as it were, and simplified, as to place knowledge and the rudiments of knowledge within the reach and comprehension of the child, as soon as the senses become susceptible of distinct impressions. Even the parent bird would teach us a useful lesson on this point, if we would mark how she tempts her callow young, by every motive and device, to follow her a-wing, even before it would seem to be safe to leave the nest. The great desideratum is to throw into these first incipient teachings as strong an infusion of thought as the youthful mind can be made to bear, and soon it would be found that intellects so managed would achieve, comparatively, as early a development, and as much alertness and power of self-support, as does the body of the rope-dancer, which owes all its extraordinary suppleness and activity to *early training*.

A work thus fitted at once to entertain and to strengthen the mind of young children—to inveigle them, if I may say so, into the love of virtuous knowledge, and to fix upon them a habit of pursuing it in books, even before they are aware of it, has just been produced in Paris, written by a man of no less distinction than the *Professor of Philosophy* in the Royal College of Poitiers, M. CHARLES JEAUNEL. This little work—in which sketches of sacred and secular biography are blended with glimpses of natural history, all in a style equally simple and attractive—has just been translated, as I happen to know, by Mr. F. G. S., for the use especially of his own children, and might well be placed in the hands of every mother in the land, to assist them, on whom, after all, the task chiefly devolves to "teach the young idea how to shoot." Ay, to the honor and glory of the sex

[* By the Census of 1840, there were in New-Jersey 6,385 over 20 years of age—white persons—or 17 out of every 1,000, who could neither read nor write; in Pennsylvania 20 out of every 1,000, and in Virginia 79 out of every 1,000. But it is an interesting question, were it possible to solve it, what proportion of those who can *barely read and write* have ever gone far enough to get a taste of the pleasures of knowledge or the least love for books. Any fool may shoot down a bullock in the field, but it takes early associations and practice, and a certain degree of wood-craft, to make a *sportsman*. Any man may bait a hook, but only a true disciple of Izaak Walton can wait all day for "one glorious nibble." *Ed. Farm. Lib.*]

be it said, how many luminaries of their age have referred to maternal supervision and teachings for the germ of all their usefulness, and their rich harvests of renown in after life !

NEW BOOKS—OMOO, AND TRAVELS IN PERU.

On intimating to my good friends, the liberal booksellers referred to, my purpose to while away some weeks in the mountains of Virginia, they kindly stocked me with their recent publications for light reading, in which I shall find some passages fitted for your journal. The first opened by chance was *Omoo*, of which the contents are as light and worthless, but not so gay and brilliant, as the very thistle's-down. Its more illustrious predecessor, *Typee*, which I have not read, had won distinction for the author, evincing for him capacity to use, if not in some measure to supply, materials for a highly entertaining work ; but for *Omoo*, it would be easy to work out a better work from the adventures before the mast of any whaler out of New-Bedford.—The next I opened, published by Wiley & Putnam, was "*Travels in Peru*, by Doctor J. J. VON TSCHUDI," who, says the Editor—with what entire accuracy this deponent saith not—lays claim to no merit beyond the *truthfulness* of his narrative. His pictures of Nature, he adds truly, especially those relating to the animal world, are frequently imbued with much of the charm of thought and style which characterizes the writings of Buffon.

Though your readers might be amused, and in some respects instructed, by his observations on the social condition and habits of the several communities he visited, and yet more with his zoölogical sketches, to make my extracts acceptable to yourself, they must, I am aware, be of a nature at least nearly akin to the chief purposes of your journal. Some of those selected seem to possess the more interest just now, as they relate to animals and vegetables the growth of Peru, many of which may doubtless be acclimated with us, especially in the Southern States, and for the introduction of which a favorable opportunity seems to be presented in the mission of Mr. WILLIAMSON, with facilities offered, as you inform us, by the Government. I would here refer to the Alpaca and other Peruvian sheep, sketches and descriptions of which you gave us, together with names of the vegetables of South America, long since, in the *American Farmer*. Doctor Tschudi speaks, as you will see by the accompanying extracts, of the celebrated highways and works constructed for Irrigation, nobody knows how long before the Conquest of Peru—of their riding and driving Horses, their equipments and training—Mules—Plantations—Cotton—Sugar—Tobacco—the Olive, and other oil-trees—various kinds of Grain—Maize—Quince—Potatoes, and other tuberous roots—Plants used for seasoning—Clover—Fruits—Figs and Grapes—the Chirimoya—the Palta—the Banana and other fruits, and others of more or less value and promise, some of them unknown to our country.* But first, I must give you the observations of this disciple of the German philosopher in Metaphysics and Archæology, on the

COMPARATIVE NATURAL CAPACITIES OF THE WHITE AND THE NEGRO RACES.

I leave you to judge how far the characteristics of the negro, designated by a writer who may well be regarded as impartial, at least on this question, apply to the same race in our country. To state facts is one thing, to propagate unestablished doctrines is another ; and I believe it may be stated as a fact within our own experience, that the most cleanly, industrious, honest and thrifty of American negroes, bond or free, are such as have been reared in slavery, and yet the more so, in proportion as their duties may have placed them in nearer proximity and personal relation to their owners ; but as to their capability for intellectual development under more favorable circumstances, and their acquisitive power of the arts of civilization, and the political virtue and forecast which form the securities for public happiness and respectability, let us wait in hopefulness the issue of the *Monrovia* experiment, with materials smelted, and it must be admitted, much refined, out of the rude African ore. We shall see to what destiny

[* Not to break in too much on the personal narrative of our correspondent, we shall separate his extracts, and publish them separately from the context in which he would have interwoven them.

Ed. *Farm. Lib.*]

that Colony will rise or fall, when, if ever, the hand and the counsels of the Caucasian race shall have been entirely withdrawn, and the Colony be left exclusively to its own government and support. Should it rise, as its friends predict, to wealth and power, it will be more than history would teach us to hope for, if the watchful rapacity of the white man does not rob the fruit of which benevolence had planted the seed. It did not avail the lamb to show the wolf who was bent on eating him that he stood uppermost in the stream, and could not muddy it. Again I repeat, let us hope for the best; in the mean time, here are the observations of this acute German traveler:

"In Lima, and indeed throughout the whole of Peru, the free negroes are a plague to society. Too indolent to support themselves by laborious industry, they readily fall into any dishonest means of getting money. Almost all the robbers who infest the roads on the coast of Peru, are free negroes. Dishonesty seems to be a part of their nature; and moreover, all their tastes and inclinations are coarse and sexual. Many warm defenders of the negroes excuse these qualities by ascribing them to the want of education, the recollection of slavery, the spirit of revenge, &c. But I here speak of free-born negroes, who are admitted into the houses of wealthy families, who from their early childhood have received as good an education as falls to the share of many of the white creoles—who are treated with kindness and liberally remunerated, and yet they do not differ from their half-savage brethren who are shut out from these advantages. If the negro had learned to read and write, and thereby made some advance in education, he is transformed into a conceited coxcomb, who, instead of plundering travelers on the highway, finds in city life a sphere for the indulgence of his evil propensities. What is the cause of this incorrigible turpitude of the negroes? To answer this important question is not easy, if we admit the principle that the Negro is as capable of cultivation as the Caucasian: and in support of it, the names of some highly educated Ethiopians may be cited. Those who are disposed to maintain this principle, and who are at the same time intimately acquainted with the social relations of the countries in which free negroes are numerous, may solve the problem. My opinion is that the negroes, with respect to capability for improvement, are far behind the Europeans, and that, considered in the aggregate, they will not, even with the advantages of careful education, obtain any very high degree of cultivation; because the structure of the Negro skull, on which depends the development of the brain, approximates closely to the animal form. The imitative faculty of the monkey is highly developed in the Negro, who readily seizes anything merely mechanical, while things demanding intelligence are beyond his reach. Sensuality is the impulse which controls the thoughts, the acts, the whole existence of the negroes. To them, freedom can be only nominal; for if they conduct themselves well, it is because they are compelled, not because they are inclined to do so. Herein lie at once the cause of, and the apology for their bad character.

"The negro women differ but little from the men, in their general characteristics. They are, however, more active and industrious, and better tempered. As domestic servants, they are superior to the mixed races [meaning mixtures of Indian blood]. They are much employed as nurses, and in those situations they discharge their duties well. Their personal vanity is boundless, and every real they can save is spent in dress and ornaments. It is amusing to see them on festival days parading about the streets, dressed in white muslin gowns trimmed with lace, and short sleeves displaying their black arms. Very short petticoats, seldom extending below the ankle, serve to exhibit the tawdry finery of red silk stockings and blue satin shoes. From their ears are suspended long gold drops, and their uncovered necks are not unfrequently adorned with costly necklaces. A negress, who was a slave belonging to a family of my acquaintance, possessed a necklace composed of five Panama pearls, worth several thousand dollars."

This story reminds me, Mr. Editor, of a slave negress I once saw on Colonel Hampton's estate in Carolina. Her holiday had already commenced at 11 A. M. on Saturday, and her ladyship was boomed out, with her head thrown back, and all sail set, moving like a steamboat into Columbia, probably with the proceeds of her hen-house or truck-patch, to add another to the seven flashy dresses she had been known to display on a single day, on some festival occasion—of which they have not a few.—But to "begin at the beginning," let us speak a word, and they need but a word, of the

CONVEYANCES FROM NEW-YORK TO FREDERICKSBURG.

Properly to estimate the speed and perfection of arrangements for traveling between these points, on various routes, one should have lived long enough to contrast the present with the old systems, when, not many short of a baker's dozen were packed in a stage-coach, and fortunate was he who arrived at Havre de Grace with whole bones late at night, the first day out from Baltimore

or Philadelphia; after being again and again stalled "up to the hub," and occasionally upset. Now you may travel chatting or reading as you go the whole distance of two hundred miles from New-York to Baltimore, in little more than twelve hours. But oblivious of past annoyances, like spoiled children, the more we are indulged the more impatient and fretful we become.

We had in the cars, from the City of "Brotherly Love," to the City of "Monuments," a most venerable couple, types of the olden time, Mr. and Mrs. Cope, of the Society of Friends, in Philadelphia, to whom these our modern contrivances for the annihilation of time and space, must truly have appeared as the work of Arabian enchantment. He is old enough to have enjoyed the acquaintance of Doctor Franklin, to whom, he says, the idea of the "Telegraph" was familiar; but there is reason to believe that the recent suggestion of its feasibility, and thence its actual establishment, is in truth and justice more referable to the learned *Secretary of the Smithsonian Institute*, than either he or others have allowed the public to know.

To be thrown, by whatever chance, into company with such choice specimens of the better days of the Republic as those octogenarian friends, is one of the few agreeable "incidents of travel" rarely to be picked up in the crowds and bustle of universal locomotion nowadays. It was truly interesting to listen to this old gentleman, as he was drawn out to speak of his personal recollections of GENERAL WASHINGTON and the old Congress, as it met in its wisdom in Philadelphia: and to hear him tell how proud he was, then a lad in a store, when charged with a bundle to take home to Mrs. WASHINGTON, the lady of *President Washington*! alas! then it was that the *man made the office*!

One curious fact worth mentioning as to Mr. Cope, and indicative of the progress of our country in one lifetime: he whose name was the first on record as a Philadelphia visitor to the *White Sulphur Springs*, is now wending his way with his aged helpmate, to the same Hygeian fountain. What better proof need we ask of the enduring virtue of its waters! Here, Sir, you must give me leave to mention an incident that if established as a common one, would help to stigmatize our national character. At one point on the road, this ancient couple, who had wintered and summered each other for so many years, were for a moment separated, and I observed that on his return a strapping young woman—for I will not call her a lady—had got into his vacant seat, and refused to restore it, saying there were other seats at his command. Seeing this, I proposed in vain to two young people next in the rear, to offer their seats, for to part these old people, it was obvious, would be like tearing the vine from its supporting tree; but they also refused. I would have cheerfully have relinquished mine to the old gentleman, who was still standing, and whom then I did not know from the Pope of Rome—but that would not have satisfied the case. It was gratifying, however, to see that this rude discourtesy to age, which everywhere commands the spontaneous homage of all well-bred people, produced an evident feeling of respectful sympathy among the passengers hard by, until the old patriarch and his aged companion were again seated, as they had ever lived, like Abraham and Sarah of old, by the side of each other.

I ought not, perhaps, to have troubled your readers with an incident that may seem somewhat commonplace, were it not that it may possibly prevent, in some case, the recurrence of anything so unsightly and unbecoming as is every want of respect to gray hairs; and to take the same occasion to intimate to directors and conductors of railroads, that something not yet established or generally understood, is now needed to regulate the rights and privileges of their passengers in respect of the retention of their seats, the opening of windows, &c. Ought not possession at the start, mauger a momentary absence on the way, to give a right to a seat for the whole route? And again: Have any lady, who takes a whim to keep open a window, or any roué, who may wish to blow off the fumes of an over-night's debauch, or to spit abroad his salivary extracts of tobacco, a right to chill and kill all around them with a piercing current of air: for you must know that, as truly saith the Spanish proverb, "A current of air that will put out a candle will kill a man!" Or is it even unto death itself that we must leave every one to enjoy, *ad libitum*, the democratic right of doing whatever he pleases!

While honor and gratitude are due, especially to the founders, and to the direc-

tors of all our great public improvements, we may next expect preventive measures against the delay and expensive inconvenience attending the transfer of "through-baggage" from one route to another.

It may not be out of place here, while on the road, to say a word about the

HOTELS IN THE CITIES FROM AND THROUGH WHICH WE ARE TRAVELING.

Public houses of entertainment in New-York are numerous, and those recently built are upon the go-ahead gigantic order of the age. I am acquainted only with two—the old "City" and the spacious "Astor," and he must be hard to please who would not be content in either.

Of others in Philadelphia, besides the "United States" in Chesnut-street, I have nothing to remark. Few can speak by comparison of many in the same town, because if we become unwilling to abandon any of our old haunts, it is such as are found in *hotels* where we have been accustomed to "put up," and been once kindly treated. How sorely disappointed and uncomfortable would be any of the old *habitués* of the "City Hotel" not to find WILLARD standing in the bar, where he has stood for the last forty years, like the picture of the vegetable lamb in Darwin's Botanic Garden, with an air of imperturbable serenity and good humor, never eating, sleeping, or moving out of that one spot!

Without meaning any disparaging comparison, it may be said of the "United States" in Philadelphia, that unless it may be for the few that remain of your staid old wealthy two-bottle bachelors and white-cravat gentlemen, this superior establishment leaves one little to regret, on his own account, at the closing of the incomparable old "Mansion House," even as it was headed by "JOE HEAD" himself. Alas, it seems to be no longer the fashion for the host to preside and "give assurance of a man" at the head of his own *table d'hôte*. With some hosts, the custom, it is true, "were better honored in the breach than the observance;" but the validity of that improvement may well be questioned that would banish from that presidency such gentlemen as JOE HEAD, DAVID BARNUM, JAMES M. SELDEN, and JOHN MINGE. Mr. Mitchell of the "United States" sits at the head of his "ladies' ordinary;" and here be it remarked that one great convenience in having gentlemen in the conduct of hotels is, that with modern conveniences and punctuality in traveling, ladies may, on emergency, venture to go without special attendants, from city to city.

If there be any fault to be found with this well-lighted, airy, and well attended house, it lies in the seeds of dyspepsia that may be lurking, like serpents among rose-bushes, in viands and confectionary, as various and excellent as the best market in the Union and the last refinements of the culinary art can produce.

Baltimore is proverbially well supplied with public ordinaries, several, doubtless, all that could be wished. There is the spacious "Eutaw House" in the west, with very gentlemanly conductors, and other guaranties for safety and comfort. There are hotels near the *dépôt* where those who go for solid quantity may satisfy the animal man with railroad dispatch. In Light-street is the old "Fountain Inn," that is anything but light, where Col. Howard and Doctor McHenry, and patriots of the days when patriots meant something, used to dine and drink old rum-toddy with General Washington in Bryden's time. But on the strength of acquaintance with it "from the stump," commend me (as in Boston to the "Tremont") here in Baltimore, for the *ne plus ultra*, to Barnum's "City Hotel," still conducted with all the energy and spirit, and the close attention to small things as well as great, which characterized its management under its lamented founder, old "King David," himself. Nor must I fail to refer the weary traveler to the "EXCHANGE," kept by one of his best pupils, Mr. DORSEY, for as kind treatment and good cheer as the heart could wish.

In this utilitarian age, when everything is tested by the *cui bono*, you will not think it amiss to give publicly a small hint—of which some of mine hosts have promptly availed themselves—to have salt placed at once within reach of every one at the table—one set at least for every three persons. In all industrial enterprises now the great desideratum, you know, is to *save labor*; and the tavern keeper has no right to compel his guests to help each other to salt any more than to bread or to water. Moreover, servants are not so numerous in any of them as to have half their time taken up in handing the salt backward and forward, up and down, from one to another, at the very moment they are most

needed. As long as small matters continue to make up the sum of social and domestic comforts, none can be too small to be worthy of notice in a journal like yours, which professes to go for the *useful*.

By-the-by, Mr. Editor, since I am at sea under a roving commission, that opens to me every port, and makes every object a fair subject for examination, let me embrace the opportunity to express my testimony in favor of

COLORED AGAINST WHITE WAITERS IN HOTELS.

For this you need go no farther than the great "Delavan" Temperance House in Albany, the "United States" in Philadelphia, and Barnum's in Baltimore, where men of color exclusively are employed. Contrast the docility, prompt attention, and submissiveness of these to the discipline which befits their station, with the air and deportment (with some very clever exceptions) of the half-naturalized, half-taught foreigner, too often picked up on the wharves for convenience, and then only to be retained until they get washed and dressed, and in a few months' breathing the air of our gloriously free democracy they get to be, in their own conceit, quite as good if not a "wee bit better nor their employers," and quite impatient for promotion to a higher office—beginning with a leader at the polls and rising to the *Sheriffalty*, or the *Mayoralty*, or, peradventure, a *Judgeship*! No, Sir; for a ruler, a man of philosophical temper and enlarged views, like Madison or Monroe—unprejudiced and tolerant of difference of opinion where reason is left free to combat it; for a genuine tyrant, an old field-demagogue, who has no idea of that liberty about which he is ever prating, beyond the usages of his party; for companions, give me high-toned, cultivated gentlemen; but for waiters, whether on the coach-box or behind your chair at the *table d'hôte*, to change my plate or to brush my shoes or my coat, give me colored men—and all the better when brought up in the "great house" and manumitted for good behavior, after being educated in slavery to humane, well-bred masters. The most accomplished head-waiter in all Canada, is a mulatto from Baltimore, in the Albion House in Quebec.—And now what shall be said of the

MARKETS IN PHILADELPHIA AND BALTIMORE.

This is a fruitful subject, and would require much more room than you can spare, though it behooves every agriculturist to know in what a good market consists; and all ought occasionally to survey those within their reach with the ambition to supply or improve what is deficient in quantity or quality. I have often heard the late ROBERT OLIVER, who was an early riser and a close observer, and made it a point to go early through the markets where he happened to be, whether at home or abroad—I have heard him often remark that there was no such market *in the world*, take it all in all, as that of *Philadelphia*! In Boston, you are struck with the urbane manners and remarkably intelligent conversation of the butchers; in Philadelphia, with the great attention to cleanliness in their persons and stalls. The two things in which they there appear to me most uniformly to excel, is in their *veal* and *butter*. To their calves designed for veal they never think of giving less than the entire milk of one cow—sometimes more—and thus they bring it to be very fat and to weigh more than a hundred pounds in six weeks; and that, they say, pays better than any other disposition that can be made of either the calf or the milk.* The richness, high flavor and excellence of their butter has been attributed, as I see in your journal, by a nice and accomplished observer of such things, (Doctor Emerson,) to the presence of the sweet-scented vernal grass (*Anthoxanthum odoratum*)† in their pastures. If so, it would surely be worth the while of farmers in the neighborhood of all large cities to patronize that grass. I think it was cultivated near Baltimore by the late Doctor Wilkins, whose memory deserves to rank highly in all agricultural and horticultural annals for his intelligence and ardor in the cause of these kindred industries.

[* For valuable information as to the Management of Cows and Calves, see this and the preceding Number of THE FARMERS' LIBRARY, from Stephens's "Book of the Farm."

Ed. Farm. Lib.]

[† With a more particular description of this grass the reader shall be furnished at the end of these Notes, or in an early number.

Ed. Farm. Lib.]

One morning's sojourn in Baltimore was embraced to visit the old *Marsh*, or principal market of the town; and sorry am I to say that for all the extrinsic essentials of light, space and cleanliness, it is far below the character of a city so populous and so famed for alertness and vigor in the career of social and economical improvement, on which our whole country seems to have so heartily entered. The side, the center, and the fish-market houses are all too low, dark, contracted and filthy, and as for the regular victualers, in their certainly not *very* white and clean shirt-sleeves and aprons, and, for the most part, coarse and dirty cloths, where there are any cloths, spread over and about their shambles—who that has ever seen them both, but must be struck with the contrast, in the *tout ensemble*, between the Baltimore and the Philadelphia markets, to the disadvantage of the former? Would it be unreasonable to suppose, where faults are so glaring in a matter of such general interest, that the *conductors of the Press*, there and everywhere among the best of police-officers, are too much otherwise occupied to traverse the Marsh Market early on Wednesdays and Saturdays? Where nods that good old sentinel over all her public concerns, the *Baltimore American*, at that early hour? Of what dreams its *Patriot* colleague? While yet the *Sun* has not risen to expose, nor the *Clipper* spread its sails to bring up the lee-way of their monumental City on a point so vital to its character and domestic comforts. Yet it must be claimed for the *materiel* of the Baltimore Market, that while far from being deficient in the essential articles of good beef, and mutton, and poultry, it excels in abundance rather than the quality of its fruit, not bearing comparison with Boston in apples, pears, grapes and plums, though it may boast of its peaches, and yet more of the excellence of its melons, celery and other vegetables—as well as of its *crabs*, hard and soft. And what greater delicacy than this last-named shell-fish without a shell, if in cooking it be divested of the yellow substance—the ‘fat’—which gives it an undesirable *acidity*, to the taste of most people? Though the supply of excellent butter has vastly increased, that seems to be an article—I mean that of the finest quality—that can never overrun the demand. Waverley butter sells to-day, as the old Hillen & Hampton butter did thirty years ago, for 37½ cents a pound, even in June. If the same facilities for the farmers were established along the Baltimore and Ohio Railroad that exist on the Eastern railroads, and if the farmers and their wives and daughters on the tide-waters of the Chesapeake, *encouraged by the same helps*, were as thrifty as those in Yankee-land, Baltimore would be of all markets in the Union the best supplied with everything that can give variety and excellence. The over-night's milk is sent perfectly fresh for use, in New-York, the next morning, from a distance of 100 miles. Instead of parading their wives and daughters at fashionable and crowded resorts, how much more useful if they would take them occasionally on a leisurely survey of the industrious habits and convenient and thrifty domestic arrangements and economy of the Northern people. Of all things, an occasional excursion for personal observation, among a thriving and notable people, makes the best “*eye-opener*,” as a long-headed Member of Congress from Baltimore City used to express himself.

A word more as to

THE INFLUENCE OF PUBLIC JOURNALS, AND THE GROWTH AND THE MEN OF BALTIMORE.

An interesting account of the exportation of bread-stuffs appeared recently in the *Baltimore American*, among the oldest, most enlightened and authentic of our commercial journals—one which has grown with the growth and strengthened with the strength of that flourishing city, repaying with interest, by honest and efficient service to the town, all the liberal patronage it has received. On a view of this lucid statement of the trade, and its constant, able advocacy of public works essential to the continued prosperity of Baltimore, my mind has sometimes rambled into reflections which brought me to the conclusion, without any reference to their party biases, that the people of large towns are not generally aware *how much they owe* of their growth and prosperity to the *conductors of leading journals*, watchful over all that may conduce to their development, their stability in well-doing. The influence of such journals, it may be apprehended, is too often felt rather than seen—enjoyed without being acknowledged. True it is that individual mercantile and mechanical enterprise is indispensable, but these journals are no less so, to explore and indicate the available objects and channels for

enterprise, and to encourage patriotic associations of capital for large purposes, beyond the reach of private means. They collect as to a focus, and reflect as from a mirror, the suggestions of individual sagacity and experience, for the establishment of useful institutions, and for the common enlightenment and happiness of all. Such is the high and responsible office of the conductors of leading papers in large cities, demanding the highest order of talents and the purest public spirit. How much more honorable and important, as respects the public welfare, than many political offices of high grade, awarded by the voice of faction, and wielded for factious ends!

Be my location, Mr. Editor, where it may, into whatever situation the accidents of party or the will of power may poke me, I shall ever have a "warm side" for old Baltimore; but those who are enjoying the golden fruits of her prosperity should never forget what they owe to those who planted the tree, and watched and watered it through all the doubtful crises of its growth, and finally handed it over in full bearing to their successors, as the rich inheritance of their cares, their sagacity, their risks, and, in not a few cases, of their sacrifices. Let them never forget that if Baltimore struck her strong tap-root in a happy position, she owes her nourishment and stalwart growth no less to the forecast, the labors, the untiring industry and the constant patriotism of the Wilsons, the Smiths, the Gilmers, the Olivers, W. Lorman, the Browns, Thomases, Ellicotts, Eltings, Sterretts, Thompsons, the Donnells and the McDonnells, &c. of bygone days. But can communities, any more than individuals, plead exemption from frequent want of discrimination, from injustice, from ingratitude?—or why is it that we so often see men courted in the social circle and exalted in the popular regard in proportion to the length of their purses, the frequency of their dinners, the age of their wines, the glitter of their equipages, the influence of their connections and the magnificence of their houses, furniture and style of living; and yet worse, if possible, to their clamorous and hypocritical professions of *love for the dear people!* while the quiet man of inquiring mind and various knowledge, and unobtrusive and vigorous capacity to be useful, is overlooked and neglected! How many ignorant and hollow-sounding demagogues, without one ray of talent or one spark of generosity—how many cunning interlopers and party changelings from political envy and disappointed ambition, high-school Federalists to-day, and Subterranean Democrats to-morrow; affecting to court, while they are known to despise, the "*vox populi*," have been elevated to the highest offices and places of patronage and authority, within our observation, to the utter exclusion of citizens of extensive research, of useful acquirements, of sound scholarship and business capacity, but who scorn to "bend the supple hinges of the knee where thrift may follow fawning." I should say here, with the author of *Gil Blas*, that while my purpose is to represent things as I find them, God forbid that I should undertake to delineate any man in particular! Let no reader, therefore, assume to himself that which properly belongs to others, lest, as Phædrus observes, he make an unlucky discovery of his own character—*stulte nudavit animi conscientiam*. Without making the application, I will only state a fact. A great work has lately come from the English press, being a consolidated Digest of the Laws which regulate the Navigation and Trade of all Nations, and the Tariffs and Taxes and Restrictions imposed by each State upon International Navigation and Commerce; and also a Digest of the Commercial Treaties which are in force between the respective States of the World. This last, and *chef d'œuvre* in its department of knowledge, is entitled MCGREGOR'S COMMERCIAL STATISTICS. The following is the second paragraph of his Preface. To many who read it, in the United States, it will probably be the first intimation of the existence of the "valuable work" referred to, and for which one of the greatest statisticians of the present day "sent frequently to America without success."

"The execution of this arduous work," says McGregor, "was intrusted to a very competent publicist, Mr. JOHN SPEAR SMITH, and the first volume of 700 pages was published in 1833, and the whole, as far as information could then be collected, in four volumes, in 1836." He says farther, he "sent frequently to America" for this "valuable work, without success, owing to the limited number that were ordered to be printed. Each of the American Legations and Consuls have had copies sent them stamped as the property of the United States; and for the perusal of these volumes—as to the first two volumes, I was indebted to

the United States Agent at Vienna, and afterward, for the two succeeding ones, to the kindness of an American Minister." Be it remembered, that this is unbought testimony from a foreigner, and an entire stranger to this *native son of Baltimore*—the testimony of no other than one of the Joint Secretaries of the Board of Trade in Great Britain, chosen for his fitness to prepare an herculean work in the most important of all departments of industrial knowledge—*Agricultural and Commercial Statistics!* Now, Mr. Editor of *THE FARMERS' LIBRARY*, in respect of this "*very competent publicist*," author of this "*valuable work*," for which McGregor "*sent frequently to America*," this accomplished scholar—son of one of the founders and pillars of Baltimore when it needed support—can you tell me to what high posts of authority or emolument he has been appointed by his native city or State, or by the General Government hard by? Yet how few of those who have, in the mean time been honored, by all parties, with public trusts of all grades, would be capable of writing a "*valuable work*" on

NATIONAL STATISTICS.

Who can overestimate the labors of the "*competent publicist*," who has the patience to collect and the talents to arrange, lucidly, a body of important statistics?—a work, by-the-by, which every State Government ought to have done periodically and faithfully, particularly as respects its *agricultural statistics*. Sententiously and most truly has it been said by an admirable French author, ALEX. MOREAU JOUNES—Paris, 1847:

"La Statistique n'est pas moins nécessaire à la vie publique des peuples qu'à leur vie privée; c'est par ses travaux, ses investigations que les grands intérêts, de l'Etat, sont élucidés, approfondis et connus; ses chiffres fournissent les meilleurs arguments, les témoignages les plus péremptoires que l'on prodouise chaque jour au conseil du Prince, au Parlement, et à l'Académie."

It would be easy to enlarge on this subject, especially as respects the scandalous ignorance and neglect of their agricultural statistics, by States calling themselves civilized, which might yet be put to shame by reflection on their inferiority in this greatest of public duties, even to the natives of Peru, who, confined between the high chain of the Andes and the great Ocean, had never yet communicated with any civilized people, when Pizarro discovered and conquered them. Yet this new country of what we call barbarians, holding no traditions of descent from any other people, and who had no means or knowledge of writing, but by *cords of different colors*, possessed a system of statistics as complete as the best that we have at the present day. It is computed that 7,000 lives are annually saved in Great Britain by a law founded on a single statistical fact in respect of the ravages of the small-pox. How many of our State legislators have learned the A B C of the statistics of their own State?—But having already too widely digressed, let us embark on the

TRIP FROM BALTIMORE TO FREDERICKSBURG, BY WATER.

For experiment and vanity we took the steamer "*Mary Washington*"—as good as her name would import—at 4 P. M., for Fredericksburg, and a most agreeable trip we had of it—the fare, and attention from the gentlemanly Commander, MYERS, and all on board, everything that the most fastidious could desire. But fully to enjoy the long and winding passage of the Rappahannock, for more than 100 miles, which you enter upon at sunrise and complete before he sets, the tourist must bear in actual or traditionary remembrance, the social reminiscences connected with the times, and the seats, as you pass them successively, of the old aristocracy that illustrated its borders in the palmy days of the Tayloes and Taylors, the Taliaferros, Alexanders, Bernards, Carters, Fitzhughs, Pendletons, &c. Earnestly may it be regretted that we have of those old families no connected and reliable biographical anecdotes and memoirs of their domestic and social economy, pastimes and ways of living; for much may it be feared that in these points of view we ne'er shall look upon their like again, however transcendental may be our "*progress*," so called! Nothing, truly, is easier than for the social moralist to decry their convivialities, their reckless management and extravagance, if you will, but is it quite sure, Sir, that their posterity do not, with some exceptions, lack their genuine patriotism, and true hospitality, and open-hearted benevo-

lence, quite as much as they do their ample domains, their manly diversions and well-appointed equipages and numerous retinue of loyal and contented dependents? Be it admitted that the sports of the turf and the chase, the lively barbecue, the mirth-inspiring fiddle, the social game of whist, the "sparkling can" and the "flowing bowl" of mint julep and apple-toddy, have all departed among the things that have been; but by what shining and superior virtues been supplanted? Are men of the present day better educated, more polished in their manners, more patriotic, more neighborly? Are the women more refined, more pious, more hospitable, less envious of the rich or more charitable to the poor? And, after all, is not the dilapidation of these old families and estates, where that has occurred, the result rather of our political institutions, and the drain opened by the generosity of the old States to draw off their enterprise and capital to the vast domains they gave away in the West, rather than of any social vice or defect in our ancestors—and therefore, as far as it has happened to be lamented rather than made a matter of unfilial reproach to the memory of those to whom we owe nearly every claim we have, while any shall remain, to national pride and glory? Truly, if our forefathers had all been thrifty niggards, we might now in opulence be enjoying the fruits of their avarice; and if our national domain had been restricted to the limits of the Old Thirteen, who shall say that we might not, ere now, have reached a higher pitch of national excellence in all solid national virtues?—for neither collective nor individual wealth or prosperity depends on mere extent of possessions, but rather on honor, diligence and good government. Judge MARSHALL, *clarum venerabile nomen*, used to say that should our once happy and contented Union ever be rent asunder by internal discord or undue expansion, he hoped, when it should come to be reorganized, that *Maryland, Virginia and North Carolina* would form a *Republic to themselves*; nor would there seem to be anything extravagant or unreasonable in the hope of adequate strength and security in such a Confederacy, recommended as it would be by geographical compactness and sympathy, as well as by homogeneousness of habits and character, when we compare these three of the old Thirteen Sisters, in size and resources, to Governments of the first class in Europe—Great Britain, for instance. As, for example, according to our eminent and venerable geographer, W. DARBY,

England embraces	58,000 square miles	Maryland	11,000 square miles
Ireland	32,000 ..	Virginia	61,300 ..
Scotland	32,164 ..	North Carolina	45,500 ..
Aggregate	122,164 square miles	Aggregate	117,800 square miles
Leaving a difference of only 4,697, or one twenty-fifth part, in favor of territorial extent for an Empire that numbers at this day a population of 30,000,000, against			
Maryland, in 1840	470,000	Virginia, East	806,942
North Carolina	753,419	Do. West	432,855
Total			2,463,216

And in what element of power or greatness, political or industrial, do the Islands of Great Britain excel these three old States? Do these not, in the aggregate, equally abound with those in mineral wealth? Are not their mines of coal and iron as inexhaustible? Do they not excel in water-power, in timber, in navigable bays and rivers, in valuable fisheries, and in harbors ample and secure, as well as in unsurpassed climate and agricultural *capabilities*—to say nothing of our boasted form and principles of Government, worthy to be propagated with fire and sword, not reflecting that ours is of intellectual organization, requiring those who use it to be morally prepared and educated to understand and appreciate it—as complicated agricultural machines, highly useful and desirable for their labor-saving properties, may not be put into the hands of common operatives, but require men of tact to comprehend and manage them.

But, to speak more particularly of the

AGRICULTURE ON THE RAPPAHANNOCK.

An impression prevails widely that in the Agriculture of this region, and of Lower Virginia generally, is grouped every sign and proof of ignorance, improvidence and mismanagement. Nor is this impression, perhaps, to be wondered at, or ascribed to prejudice or unkindness on the part of those who take but a superficial view, looking first and with admiration, as every one must, at its allu-

vial fertility, its admirable adaptation to the growth of all our cereal products, and its easy and natural accesses to all the best markets, and then at the astounding fact that its population is stationary if not retrograde. On this point it were not easy to speak more pointedly than by referring to the testimony of a writer to be found in *THE FARMERS' LIBRARY* itself, August number of 1846. In reference to this very district of country, for twenty miles, at least, on the Rappahannock, below Fredericksburg, he says that within the last twenty years the products have greatly increased. Bare fields, a few years since, have become rich pastures; the stock of all kinds has improved in blood and character; dwellings and farm-houses have very generally become more suitable for the purposes of their construction; while some few expensive and beautiful residences have been built, and neat and appropriate churches erected—all indicating an advancement in refinement, comfort and morals. By intercourse with their countrymen of other States, which was almost interdicted before the introduction of travel by steam-power, and the *extension of knowledge by agricultural works*, he says the lowlanders of Virginia have introduced among them the results of experience elsewhere, and the advantages of a *superior kind of farming utensils*. In the aggregate, larger crops of grain are probably made in every county of Virginia, than when a former proprietor of "Mount Airy" occasionally sent in one year thirty thousand bushels of wheat to market, which sold at about two dollars per bushel. The estate referred to, he farther says, has been divided into some dozen parts, and one or more parts on an average produces more, some double the quantity that the same parts produced twenty years ago. This increased product, with fewer laborers, he adds, has been produced by the improved modes of Agriculture, chiefly by manures, draining, and suspension of too much grazing. Marl, lime, clover and plaster, have contributed to these results, besides the judicious application of other manures. Such, Sir, is the testimony of a gentleman "to the manor born," one of the last and the brightest links between all that was and all that is, the best of ours and of the olden time—reared under all advantages to judge and describe that personal opportunity and the highest order of intelligence can give.

When it is considered how many of the most enterprising sons of the Old Dominion have moved off to the South-west, carrying with them thousands of the most efficient laborers, the wonder may well be that the maximum of her productiveness should yet be reaped; nor can it be accounted for otherwise than on your correspondent's well-grounded assumption of more intelligent and improved modes of culture, and the use of more labor-saving implements and machinery, the more perfect plow, deeper and finer tilth, the threshing-machine, the revolving rake, the cultivator, &c., and by a much more careful husbandry of all resources for barn-yard manure, with a better understanding of the uses and value of the marl everywhere underlying their farms. For these last checks to the progress of exhaustion let Virginia be ever grateful to her Taylors and her Ruffins. Here it was, in Caroline, that Arator himself lived, and breathed over Southern Agriculture a spirit of revival that will never cease to have effect. He it was who taught his brother farmers the great secret of improvement, for he taught them *to think*; and cannot one of his sons, Mr. Editor, be moved to revive, through your pages, for the gratitude and emulation of the present generation of cultivators, and for the honor of the profession, the fading remembrance of his devotedness, and very popular contributions to the cause of agricultural improvement? Or is it to be forever that only "through blood and slaughter" men shall win their way to the highest honors and the most lasting distinction?

To comprehend the whole theory and practice of the application of marl, your readers will not need to be referred to the writings of EDMUND RUFFIN, and especially to his unrivaled Essay on "Calcareous Manures;" but, for an exhibition of its efficacy in a particular and recent case, precisely in this district, where and of which I am writing, take the following, already once transferred from *The American Agriculturist* to the *Richmond Whig*.

THE USE OF MARL NEAR FREDERICKSBURG.

LYTTON Y. ATKINS states as follows:

"The impression has hitherto generally prevailed that the application of marl to poor lands must be limited by the progress of cultivation, and that it could not exert much of its

fertilizing power if applied to such lands without cultivation. This, I think, is an error, as will be clearly shown by the result of the experiment which I will proceed to detail:

In the month of February, 1846, five hundred bushels of *blue* or green sand marl were scattered on a measured acre of land, which was covered with a growth of broom-grass, known to be alike the badge of poverty, and the memorial of mal-treatment in bygone days.

On this land, in March following, three gallons of clover seed were scattered, (red clover,) and in the month of June, 1846, the clover was found to be in a thriving condition, bunches of it having reached the height of 28 inches in less than three months after the seed was sown. And now (June 12th, 1847,) it has complete possession of the soil, and after having been much injured by a long and severe drouth, that portion of it that has gone to bloom is from 15 to 20 inches high. As I did not wish my first experiment to prove abortive from drouth, I used nearly double as much seed as would, under ordinary circumstances, be requisite. Two gallons to the acre would be an abundance. This land has not had the plow, hoe or spade to operate on it for nearly 20 years. Now it seems to me that the result of this experiment shows conclusively that lands similar to this (which are abundant in Eastern Virginia), having a supply of *blue* marl near them, may be converted into rich grazing lands, without subjecting them to a previous succession of cleansing crops, and thus the farmer could make ample provision for his cattle and other animals, without grazing lands devoted to wheat, corn, &c.

The cost of restoring such land as that mentioned above to fertility, by marling and applying clover-seed, would be from five to seven dollars per acre, and this cannot be considered 'paying too dear for the whistle,' when it is recollected that the land, after the process, would be cheaper at thirty dollars per acre, than it would be at *two* dollars, if left in its previous impoverished condition. In the last mentioned state, it would bring the cultivator in debt; but when improved, it would not only yield enough to meet the expense of cultivating and securing the crops, but would also pay a handsome profit in the investment if valued at thirty dollars per acre."

With all these resources and facilities, it will appear strange that in the last 20 years (from 1820 to 1840,) *Caroline County* should have actually decreased in population from 18,000 to 17,800; but it should be borne in mind that this part of Virginia has been acted upon, with peculiar force, by the drains which have so influenced the spread of population over the whole Union that while, during the last ten years previous to 1840, the population of the seventeen "Atlantic States," including the District of Columbia, increased from 9,182,237 to only 10,689,596, that of the Western and North-western States increased in the same decennial term, from 3,673,900 to 6,302,915, or *nearly doubled in ten years!* while *Virginia* during the same period increased only from 1,211,266 to 1,239,797. *Alabama* swarming with the most enterprising sons of the Old Dominion, has very *nearly doubled in the same time*—increasing in these ten years from 309,206 to 590,756.

Virginia stood, even as late as 1800, ahead of all the Union in population; but, thanks chiefly to her patriotic sacrifice for the good of "all the States of the American Union," a country has been opened in the West seven times larger than all the Atlantic States—without including Texas, with her vast and undefined extent of domain. Let those, then, who would cast a slur on Virginia for the slowness of her growth, remember that she has been sending swarm after swarm into hives of her own providing. Surely, not one of those States which, not sleeping, she allowed to be cut as ribs from her own side, will give her occasion to say:

"She hath abated me of half my train;
Look'd black upon me; struck me with her tongue
Most serpent-like, upon the very heart."

Nevertheless we must be "just and fear not" to admit that there must be *something* destructive or prejudicial in her institutions or policy; else how is it to be accounted for that she should lag so much behind (I will not take for comparison Ohio, a Free, or Alabama a Slave State, but) one of the Old Confederacy, which resembles without excelling her in any of the natural bases of popular or development of political power—Pennsylvania for example?

If Pennsylvania has her beds of coal and iron and limestone, is Virginia deficient in these minerals? While she greatly surpasses her growing sister in other advantages, as in her navigable waters and water power—in proximity to the ocean; in climate and in agricultural capabilities. Yet it practically behooves her to see how steadily and quietly this and other even of the old Atlantic States

not enjoying equal natural advantages, are shooting ahead of her, on that arena where all the conflicts of political interests, and all the uses of political power are finally exercised and settled; *I mean on the floor of Congress. It behooves her, in a word, to think less of '98 and more of '48.* Let us hail as auspicious omens, the signs of

INTERNAL IMPROVEMENTS IN VIRGINIA.

Beside the multiplication of her manufacturing establishments, and other means for bringing her dormant resources into play, a scheme which in its financial features is as novel as it promises to be efficient, is now now in progress for rendering the Rappahannock River available for the transportation of agricultural produce and passengers above the Falls at Falmouth. If such a project has been elsewhere carried out, I am not aware of it. Two or three individuals, as I understand, have undertaken to revive and execute an almost obsolete act of incorporation, to make that portion of the river boatable by canal, and yet more by slack-water navigation. They went round, it seems, from farmer to farmer, throughout the bordering country, and obtained their bonds, each to contribute what he said he would be willing to *give* to have the river made navigable to a given point within a certain distance of his farm. Having thus obtained from responsible persons bonds to the requisite amount, these two or three individuals transferred them for a good bonus to moneyed men, who were willing, on the faith of them, and the tolls arising on the trade, to go on with the work, they of course owning all the stock, and receiving all the tolls, to the payment of which the obligees of the bonds, mind you, are as liable as others.

This, you will say, was quite liberal on the part of the farmer-contributors, and quite a safe "business transaction" for the moneyed men, who, be it said, generally get to be such by having an eye to the main chance—and yet it may have been decidedly to the interest of the farmers to get the work done on such terms. With a like manifestation of public spirit and selfish enterprise combined, how many desirable improvements might be accomplished in different parts of the country, if we had the men of energy to undertake them!

It is said that by the close of autumn this work will be completed as far as Lee's Springs, near Warrenton, about 56 miles above Fredericksburg; and this, I rejoice to say, is only one among other expressive signs that this old State, alive since '98 to nothing but party politics, is awakening to a perception of the value and availability of her long-neglected resources. Did you never, when a boy, see a land terrapin play 'possum, and refuse to move until he felt the coals burning through his back. And now, gentle reader, if not wearied out with my digressions, I must ask you to accompany me, *en cheval*,

FROM THE VALLEY OF THE RAPPAHANNOCK TO THE VALLEY OF THE SHENANDOAH.

Leaving Fredericksburg, which lies in Stafford, by some accounted the poorest county in the State, we traveled over a high, poor clay soil county, part of it significantly yclept "The Wilderness," stopping once on the way to bait our horses and to regale ourselves with that feast by the way-side of all others most relished, if composed of a few "biscuit," a cold chicken, and the hock-end of an old ham, to be eaten in the shade of a spreading tree near a cool spring, with barely enough left to hand over with a kind good-will to your trusty servants.

For this-country roads, considering that no Grand Jury is soon to sit, we were blessed with a remarkable exemption from accidents and mishaps on the way,* having only once "mired down to the hubs" in this beautiful month of June. Fortunately, by the aid of some kind colored men and their teams, we were lit-

[* In Maryland the county roads are what they call "mended" twice a year—spring and fall—just before the sessions of the County Courts, to please and satisfy the Judges, the Grand Jurors, and the Lawyers from a distance, who are looked upon by the "common" people as beings of a superior order: next come the Doctors, next the Merchants, and then the *Farmers*—always last in their own esteem. What boy is ever taught the principle of road-making, except at the *Military Academy*? The loose dirt scraped into these country roads is all carried away by the first thunder-gust, and hence they are not mended until the last days before the Court.

Ed. Farm. Lib.]

erally backed out of this dilemma, and, after an hour's delay, proceeded for the residence of Col. JOHN THOM, a most gallant and well-bred gentleman, "all of the olden time," as was well evinced by his cordial reception of us, and especially by his solicitude for the comfort of the ladies, without which there can be no pretensions to good-breeding. Though we came upon him unexpectedly at 9 P. M., and found him all alone, for the nonce, it only showed us that "old Virginny never tires." You cannot surprise them with any call on their hospitality any more than you can "catch a weasel asleep." To other people, hospitality comes by education—the Southern gentleman takes it in the natural way. "*Haud experientia loquor.*" Men, women and children—servants, carriages and horses, were all promptly and kindly provided for; and after a good night's rest, the morning, heralded by the songs of birds, offered to us our first view of the "Blue Ridge" Mountains, with their undulating outline, like the mighty waves of a troubled ocean, in the hazy distance.

Berry Hill is one of those large old "places," even yet so common in the South, which Time, that "waits for no man," begins to tell upon, as on its venerable proprietor. It is, in fact, not easy to say how a farm of 1,000 acres can be restored to pristine fertility, on which, during fifty years or more, has been played the game denounced by Poor Richard, of "always taking out of the meal-tub and never putting in." I should suppose, as indeed I am told, that *gypsum* would act well on these lands; but no kind or quantity of grasses which it may be made to produce, and which it is the object of gypsum to promote, if always grazed or otherwise carried off, instead of being turned in, can long enable the soil on which it grows to resist the effect of exhausting rotations of cultivated crops. *Lime*, too, pops at once into the minds of every one as the great *elixir vitæ*, that would in a few years restore this exanimate region, and clothe it again with verdure and fertility; but the distance and dearthness of that resource put it out of the question in these upland counties. The truth probably is that only by the "inclosing system," recommended by *Arator*, can any attempt be made toward general resuscitation in the old grain-growing States, where capital and force are so out of all proportion small, when compared to the size of the farms—and even for that there is not of these one-tenth part of what is necessary to bring their arable lands back to an average of twenty bushels of wheat and forty of Indian corn.

Nor are these Southern States the only portions of the United States that are falling into irremediable consumption, under the *syphon-like* operation of our Western domain, which is draining the Atlantic States to the very lees. Behold the famous Western New-York, already sunk to below fourteen bushels to the acre of Wheat, and according to the best opinion, the whole State producing no surplus of that grain, beyond her own consumption, since 1838. Nor is it believed that the surplus produced in Pennsylvania is large, or so great as it was twenty or even thirty years ago. Still there is something extraordinary in the comparative increase of the value of lands and of population in Virginia and some other States, worthy to be investigated by the political economist. For instance—according to Professor Tucker, an eminent statistical writer, as you have said, and as a general scholar an ornament to our country—the decennial increase in the value of land in Virginia has been 31 per cent., while that of her population has been but 7. On the other hand, the decennial increase in the value of land in New-York has been but 27 per cent., and that of her population 37—the average decennial increase between 1815 and 1835.

It is to be remarked, however, that much of this great popular accession has taken place in the *large cities* of New-York and Pennsylvania—that of both *New-York and Philadelphia* bearing, with remarkable regularity, the proportion of one-tenth, to the population of the States. Another reason for the non-advancement of the value of land in New-York, which I have not, or do not recollect to have seen mentioned, is her *proximity to Michigan and other portions of our cheap and fertile Western lands*, almost within sound of the woodman's ax on the frontiers—axes handled, for the most part by her own sons, with facilities for removal, "bag and baggage," that must for a long time retard the general, steady, and progressive improvement of the old States, New-York included. If New-England is in a condition of general amelioration and prosperity, it is because there they have touched bottom and gone through the ordeal. Estates

have been there divided until, generally, they admit of no farther subdivision; and continuing in the same family, their outlines and interior arrangements and fixtures remain, intact, from generation to generation; and moreover, because of the great number of thriving, well-fed *non-producers* in every neighborhood, to create ready and remunerating demand for the farmers' produce, from the larger staples down to his apples and his pigs, and all his "odds and ends," even to a pint of buttermilk. In 1820 the population of Virginia and New-York were very nearly the same, each a fraction over a million. Then Virginia had only seven persons to the square mile or 640 acres, while New-York had twenty-seven. Since then the population of Virginia has increased only 174,468, while that of New-York has increased 1,373,463, having more than doubled in twenty years.

The fact is, there might be 500,000 able-bodied men added to her present force, and profitably employed in Agriculture in Virginia, that is, in a way to gain a comfortable livelihood, and to regenerate the whole country. Ten New-England families would grow and flourish on the very estate upon which I am writing, of one thousand acres, all in view. But, says the reader, after all, why so eager for more people? Do numbers constitute prosperity or happiness? Is not Ireland at once one of the most populous and at the same time most degraded and miserable countries in the world? All very true. Numbers are not always identical with prosperity or power; but in our confederacy or partnership Government, the members of a State constitute *its stock in trade! its political power!* its share in the direction and distribution of the proceeds and the surplus of public property and income. In proportion to its *numbers* does each State participate in the origination of all money bills, the imposition of taxes, and—what is yet more dangerous, because insidious and imperceptible to the senses of the people—the power of *borrowing money* and accumulating debt upon the *landed interest*, which is looked to, after all, as the great, substantial, tangible security. In a word, it is on the *floor of Congress* that the shoe begins to pinch Virginia and all the old Middle and Southern States, and will pinch them still harder!

But, Sir, you have not room for these speculations; and, besides, as you have intimated, some people may begin to inquire, What has a "FARMERS' LIBRARY" to do with *political economy and the acts of Congress*? No matter how directly or how heavily they may bear on the agriculturists of the country. And so, after a true Virginia breakfast, we must say *farewell* to Berry Hill and to its estimable and hospitable proprietor. If you would judge of his stock, and have any claims on her hospitality, even the little that I had, I recommend you, Mr. Editor, to step ashore at Point Coupée, at Col. Taylor's, on the Mississippi, and from the head of his table you may have the honor of being served by a thorough-bred old Virginia lady, and she the daughter of Col. JOHN THOM. Leaving Berryville, we passed by Culpeper Court-House, and so on by Woodville in Rappahannock, reaching before night "MONTPELIER," the charming residence of Doctor P. THORNTON, where I have amused myself with scribbling this long rigmarole. Proposing to write again from the Springs in Greenbriar, I must now say

Vale-vale. OMOO.

TO DESTROY THE CURCULIO.—A gentleman of this city informs us that a lady of his acquaintance has, for several years past, practiced hanging one or more bottles, filled with sweetened water, or the like, among the branches of her plum-trees, and the result has been an abundant supply of both curculios and plums. The curculios are caught in the bottle, and the plums left to ripen without suffering from the curculios' usual depredations. Some little attention is necessary to note when the bottles get filled, and then, of course, they must be emptied and filled afresh. The gentleman says that this course has been fully successful; resulting in abundant crops from trees so managed, while others around had their fruit entirely destroyed. The remedy as stated is a simple one, and so easily adopted that if in other cases it should not succeed, its expense will be very trifling. [Cleveland Herald.]

SHEEP TRADE.—The Pittsburg Gazette says a large operation is going on in an adjoining county in Ohio, in slaughtering sheep, feeding hogs with the offal, rendering the carcass into tallow, curing the hams for market, and preparing the pelts in a mercantile manner. Last season about 20,000 sheep were thus "manufactured." This season 1,000 hogs are fattening at one establishment.

CLIMATE.

IN reading accounts of agricultural and horticultural experiments and results as detailed in European works, no man of common sense needs to be reminded that difference of climate should always be kept in view; but the necessity of doing this does not justify a stupid rejection of all such works.

We have repeatedly adverted to this difference of climate, in the way of caution to our readers. On the general subject, we take the following from *Johnson's Gardener's Dictionary*:

CLIMATE controls the growth of plants most imperatively, and in the cultivation of his fruits, flowers, and culinary vegetables, it forms the first object of the gardener's inquiry. He must know the climate in which any given plant is native; and secondly, the soil which it affects, before he can cultivate it successfully. How all-influential is climate appears from the fact that different countries have often a totally different Flora on soils similar in constitution. Thus, as is observed by De Candolle and Sprengel, in *The Philosophy of Plants*, "there are a great many perfect plants which exclusively belong to the Tropics, which never pass beyond them, and which are found equally in Asia and Africa, in America and the South Sea Islands, and even in New-Holland. Although, as we have said, these are rather families, as *Palme Scitamineæ*, *Musæ*, *Sapindeæ*, and *Anonæ*; or genera, as *Epidendrum*, *Santalum*, *Olex*, *Cymbidium*, &c.: yet there are particular species, which grow in all parts of the world only between the tropics, as for instance, *Heliotropium Indicum*, *Ageratum conyzoides*, *Pistia stratiotes*, *Scoparia dulcis*, *Guilandina Bonduc*, *Sphenoclea zeylanica*, *Abrus precatorius*, *Boerhavia mutabilis*, &c. But most commonly there are other species, which, under the same degree of latitude, supply in the New World the place of related species in the old. *Dryas octopetala*, indeed, grows equally upon the mountains of Canada, and in Europe; but *Dryas tenella* of Pursh, which is very like the former, grows only in Greenland and Labrador. Instead of the *Platanus Orientalis*, there grows in North America the *Platanus Occidentalis*; instead of *Pinus Cembra*, in Europe and Asia, there grows in North America *Pinus Strobus*; instead of *Prunus Laurocerasus*, in Asia Minor there grows under the same latitude in North America the *Prunus Caroliniana*. There are many exceptions to this rule, however, depending on circumstances that have been already noticed. In the first place, countries are wont to share their Floras with neighboring regions, especially islands lying under the same latitude, as the Azores possess the Floras of Europe and of Northern Africa, rather than those of

America, because they are scarcely ten degrees of longitude from the coast of Portugal. Sicily, and still more, Malta, possess a Flora made up of those of the South of Europe and the North of Africa. The Aleutian Islands share their Flora with the North-west coast of America, and the North-east of Asia. But the most distant countries, lying under the same latitude, may have the same or a similar vegetation, while countries or islands which lie between them have not the least share in this particular Flora. The Island of St. Helena, which is scarcely eighteen degrees of longitude from the West of Africa, and which lies a little farther South than Congo, has yet no plants which are found in those last-named regions. (Roxburgh's List of Plants seen in the Island of St. Helena, appended to Beatson's "Island of St. Helena.") Japan has a great many plants common to Southern Europe, which however, are not found in those regions of Asia that lie under the same latitude.

We must farther remark that the eastern countries of the Old World, and the eastern shores of America, as far as the Allegany Mountains, have a much lower temperature than the western regions; and that it is always colder in Siberia and the North-east of Asia, than under the same latitude in Europe; and, that even Petersburg is colder than Upsal, and Upsal than Christiania; although they all three lie in the sixtieth degree of north latitude. In North America the difference is still greater, and there commonly fifteen degrees of Fahrenheit's thermometer between the temperature of the east and west coast. It hence happened that many plants which in Norway grow under the polar circle, scarcely reach the sixtieth degree on the limits between Asia and Europe. To this class belong the Silver Fir, Mountain Ash, Trembling Poplar, Black Alder, and Juniper. Even in the temperate zone, the vegetation of many trees ceases sooner in the East than in the West. In Lithuania and Prussia, under the fifty-third degree, neither vines nor peaches nor apricots thrive: at least their fruit does not ripen, as also happens in the middle of England. The most remarkable example of this

great difference of temperature is furnished by the *Mespilus Japonica*, which grows at Nanga Sacki, and Jeddo, under the thirty-third and thirty-sixth degrees of north latitude; and which also grows in the open air in England, under the fifty-second degree of north latitude, when it is planted against a wall.—*Botanical Register*, vol. v.

The same degree of latitude in the Southern and Northern Hemisphere are connected with very different temperatures, and produce a completely different vegetation. This, however, must be understood rather of the temperate and frigid zones, than of the tropical climates, which, as we have already noticed, are pretty much the same over the whole earth. But the summer is shorter in the Southern Hemisphere because the motion of the earth in her perigee is more rapid. The summer is there also colder, because the greater quantity of ice over the vast extent of sea requires more heat for dissolving it than can be obtained; as also because the sunbeams are not reflected in such quantity from the clear surface of the sea water, as to afford the proper degree of heat. It thence happens that in the Southern Hemisphere the Flora of the pole extends nearer the Equator than in the Northern. Under the fifty third and fifty-fourth degrees of latitude, we meet with plants which correspond with the Arctic Flora. In Magellan's Land, and in Terra del Fuego, *Betula antarctica* corresponds with *Betula nana* in Lapland; *Empetrum rubrum* with *Empetrum nigrum*—*Arnica oporina* with *Arnica montana*—*Geum Magellanica* with *Geum rivale* in England—*Saxifraga Magellanica* with *Saxifraga rivularis* in Finmark. Instead of *Andromeda tetragona* and *hypnoides* of Lapland, Terra del Fuego produces *Andromeda myrsinites*; in the place of *Arbutus alpina* and *Uva ursi* of the Arctic polar circle, Terra del Fuego produces *Arbutus mucronata*, *microphylla*, and *pumila*. *Aira antarctica* reminds us of the *Holcus alpina* of Wahlenburgh; and *Pinguicula antarctica* recalls to our recollection *Pinguicula alpina*. We must recollect, however, that in South America the great mountain chains of the Andes stretch from the tropical regions, almost without interruption, to the Straits of Magellan (from the fifty-second to the fifty-third degree of south latitude), and that, on this account, tropical forms are seen in that frigid southern zone, because the tract of mountains everywhere determines vegetation. It is hence that the Straits of Magellan are prolific of *Caronarie*, *Onagræ*, *Dorsteniæ*, and *Heliotropiæ*, which in other parts of the world grow only within the Tropics, or in their neighborhood. In general, the vegetation of the Southern Hemisphere is very different from that of the Northern; and there is a certain correspondence between the Floras of Southern Africa, America, and New Holland. Most of the trees are woody, with stiff leaves, blossoms sometimes magnificent, but fruit of little flavor. In Southern Africa, as well as in New-

Holland, it is the form of the *Protææ* which prevails, as if appropriated to these regions. Instead of the South American *Ericæ*, we find the *Epacridæ* of New-Holland; *Lobeliæ*, *Diosmæ*, and a great number of rare forms of compound blossoms and of umbellatæ, are common to all these southern regions."

Now, the reason for these differences is that the countries thus contrasted differ in climate—that is, they differ in the intensity and duration of light and heat they enjoy—they differ in the contrast of their day and night temperatures—they differ in the relative length of the day and night—they differ in the length of their summer and winter, or, which is synonymous, in the relative length of their periods of vegetable activity and rest; they differ also in the amount of rain which falls, not only annually, but at particular seasons; they differ in having much atmospheric moisture deposited in the form of rain or dew, or snow, at different periods of vegetable activity or rest. Now, whatever these differences are, whatever the peculiarities of a climate are from which a plant comes, the gardener cannot cultivate it successfully unless he secure to that plant those climatal differences and peculiarities.

NURSERIES.—We learn that nurseries are increasing in every direction; so much the better. It is time to cut down many of our old orchards and begin on better plans. We need not fear being overstocked with winter fruit, for our market is unlimited; we send apples to Europe, to the East Indies, to the West Indies, and to South America. Our northern apples are preferred to those of the Middle States, for they can be longer kept. What can we do better than to supply the world with the fruits that are adapted to our climate? If we cannot compete with the West in the articles of corn and grain, we can raise better apples than any of them and make a more ready market.

We are pleased that many farmers are now aware that one apple-tree in tilled land, or in a hog-yard, is worth half a dozen standing in unbroken sward land.

[Massachusetts Ploughman.]

SHEEP HUSBANDRY IN THE UNITED STATES.—According to a calculation made some few years since, there were in the United States 34,000,000 of sheep. At a moderate and rational computation the value of these may safely be estimated at \$70,000,000 and the amount of wool annually produced at \$40,000,000. Of this vast flock, the State of New-York owned, at the time of making the above estimate, nearly one-fifth. For the five years immediately preceding that time, the increase of sheep in the United States averaged 1,000,000 per year. Since then it has probably been much greater.

THE PRINCIPLES OF ARTIFICIAL MANURING.

(Second Part.)

BY PROFESSOR JUSTUS LIEBIG.

TWENTY-FIVE years ago, when the manufacture of spa and mineral waters began, they met with violent opposition from the members of the Faculty, as being deprived of all the good qualities of the natural ones—as wanting, in a certain *conditio, sine qua non*—in a *spiritus rector*, or vital power, which alone gave them any medicinal qualities. Those times have passed now—Chemistry has demonstrated to a certainty what the constituents of those various waters are, and under what forms and compounds they are united in them. It has succeeded in combining them exactly in the same proportions, and in rendering them not only equal to the natural ones, but even more effective. Only from that time physicians were induced to connect certain effects on the human body with certain elements in the waters, and were enabled by the light of Science to add more of this element, or more of that; nay, to apply, instead of the waters themselves, the one active element alone, as is, for instance, the case with iodine in indurations and struma. It is well known that at this moment there are extensive manufactures of mineral waters in England, at Berlin, at Dresden, at Vienna, etc.

Now, I believe that the same principle may be applied, partially, at least, to the use of manufactured manures, which, in England, has just been called into existence. Guano, that powerful manure, the efficacy of which, in a judicious application, has been clearly demonstrated by the testimony of the most intelligent farmers, cannot be supplied for a much longer period, because the rich stores in Chili and Africa must be shortly exhausted. As it is only in very dry countries that it is found, we cannot expect to discover many more places containing it, and what are we then to do? My attention has often been directed to the question whether, according to our experience and the present state of Science, a manure might not be composed which could replace the genuine guano in its effects, and whether I could not, by a series of experiments, point out a way of preparing one equal to it in all its chemical and physical properties? You are well aware that we know with certainty all the elements of the guano, as well as the urine and solid feces of men and animals. In like manner it seems to have verified the opinion which I have laid down in my work on Agriculture, that the salts manufactured in the laboratory have the same effect on the growth of plants if they are embodied to the fields, in the same forms in which the animals furnish them in their ex-

crements. This must be evident to every one who knows that to produce these compounds in the laboratory, the same agencies and means are made use of which are employed by Nature. The fabrication of a manure, equal in its composition and effects to the solid and fluid excrements of animals and men, seems to me one of the most essential demands of our time—more especially for a country like England, in which, from various circumstances, a rational Agriculture without a supply of manure, in some shape or other, *from without*, seems nearly impossible. Our reasoning will appear the more correct if we remember how different are the results which have been obtained by the different analyses of the different sorts of guano—how little the farmer can depend upon producing from a given quantity a certain effect, as the latter naturally varies according to the composition of the former. There are scarcely any two samples in the market with the same composition—nay, not even similar. The following salts may be regarded as the essential constituents of a powerful manure applicable to all descriptions of soil:

Earthy Phosphates.—The most important of these is *Phosphate of Lime*, which occurs in nature as a mineral called *apatite*. It is the principal component in bones, which, it may be observed, have been found most efficacious if calcined, consequently deprived of their animal matter. The rapidity of the effects of phosphate of lime on the growth of plants depends upon its greater or lesser solubility. Its amount of glue (gelatine) diminishes this solubility if the soil is rich in vegetable matters, which furnish carbonic acid by their decomposition, and which acid is required for rendering the phosphate of lime soluble in water, and introducing it into the organism of the plants. In the calcined state the bones act sufficiently quickly; but in those soils in which this cause of solubility is wanting their action is slower. In my work I had recommended the addition of a certain quantity of sulphuric acid, both in order to render the bones more soluble, and to change the neutral phosphate of the bones into gypsum, and into a phosphate which contains more acid—superphosphate of lime. I have been informed that this advice has been most extensively adopted, that the superphosphate of lime has been found to be a most efficacious manure, and that it forms already a most important article of Commerce. A second earthy phosphate, not less important, is the *Phosphate of Magnesia*, which it is well

known enters in a still larger proportion than the *phosphate of lime* into the composition of the grain.

The *Alkaline Phosphates*, although not originally found in nature, are important elements of the seeds of grain, of peas, beans, &c. A rational farmer must provide them in sufficient quantities to those plants which require them for their development, from knowing that human excrements increase the produce of grain in a far greater proportion, because they contain alkaline phosphates, than the animal excrements, in which they do not exist.

The *Alkalies*—potash and soda—must be constituents of every rationally composed manure, because by them the original fertile condition of the fields is preserved. A soil which contains the *alkalies* in too small a quantity is, perhaps, fertile for grain; but is not necessarily so for turnips or potatoes, which require a great quantity of alkali. By supplying an alkaline manure, fallows or the cultivation of those plants which are grown during the time of fallowing, become less necessary.

Sulphate of Potash is a constituent of all plants, although in small quantity, as well as common salt and *chloride of potassium*, which are found in milk in rather a large proportion. The *salts of lime*, especially *gypsum*, are important nourishment for the leguminous plants. *Silica* is never wanting in all sorts of soils—it is a constituent of all rocks, by the decomposition of which all productive soils are formed, and the *Cerealia* find it everywhere in sufficient quantity, and in a form capable of being taken up by the plants, if the *alkalies* are provided wherever they are present in too small quantity.

Salts of Ammonia.—It may be regarded as certain that the nitrogen of the plants is derived either from the ammonia of the atmosphere, or from the manure which is provided in the shape of animal fluid and solid

excrements, and that nitrogenous compounds exercise an effect on the growth of plants only in so far as they give up their nitrogen in the form of ammonia during their decomposition and decay. We may, therefore, profitably replace all the nitrogenous substances with compounds of ammonia.

Decaying vegetable matters, which contain carbon, are useful to the fields in so far as they provide a source of carbonic acid; but they are quite dispensable in manure, if it be rationally combined, as the atmospheric air is an inexhaustible source of carbonic acid, from which the plants derive their carbon, *i. e.*, if in the manure, the mineral substances are provided which are necessary for the assimilation of the carbonic acid. These are the substances which together give fertility to the soil; but, although each of them may, under certain circumstances—*viz.*, where the soil is defective, or where it is not indifferent to the plant to take up one instead of the other, as, for instance, may be the case with soda instead of potash—increase the fertility, no one of them can be regarded as manure, according to the common meaning of the word, for the simple reason that only *all of them*, in *certain proportions*, will fulfill the purpose for which the common manure is applied. This purpose is the restoration or an increase of the original fertility, and by manure we must replace all the constituents of the plants which have been taken away in the harvest, or which are contained in the plants which we are desirous to cultivate.

What, then, are the constituents of the soil which we remove by the straw, seeds, tuberculous roots, stalks, &c., of our plants of culture? It is obvious that we must know these first, in order to *restore* them in sufficient quantities. To this we answer, by giving the analysis of the ashes of plants and their seeds. Hundred weights of the ashes of the following plants contains—

CONSTITUENTS.	Straw of				Ashes of
	Beans.	Peas.	Potatoes.	Clover.	Hay.
Alkaline Carbonates.....	22.38	12.43	4.34	31.63	3.0
Carbonate of Lime.....	39.50	47.81	43.68	41.61	6.9
Phosphate of Lime.....	6.43	5.15	5.73	1.180	40.8
Phosphate of Magnesia.....	6.66	4.37	7.82	0.91	
Sulphate of Potash or Soda.....	12.40	10.15		2.23	8.84
Magnesia.....					21.8
Chloride of Sodium or Potassium.....	0.28	4.63	2.8	2.27	3.06
Phosphate of Iron.....					
Phosphate of Alumina, &c.....					1.27

In these analyses silica has not been taken into account, as it is found in all soils, and need not be supplied. One hundred weight

of the ashes of potatoes, and the seeds of the following plants, contain—

CONSTITUENTS.	Potatoes.	Wheat.	Beans (<i>Vicia faba</i>).
Alkaline Phosphates.....	15.75	52.98	68.59
Phosphate of Lime and Magnesia..	9.00	38.02	28.46
Phosphate of Iron.....	0.20	0.67	
Sulphate of Potash.....	15.07		1.84
Carb. of Potash and Soda.....	51.70		

What is wanting in the 100 of the above analyses is sand, coal, or loss. From these researches it appears that for stalks and leaves we require other elements than for seeds. The former contain no alkaline phosphates, but they require for their development and growth a rich supply of alkaline carbonates and sulphates. On the other hand the carbonates are entirely wanting in the seeds, which, however, are very rich in phosphates. It is sufficiently obvious that a rational farmer must supply both, as well as all the others. If he supply only phosphates, and do not restore the alkaline carbonates, his soil will become gradually barren—it will be exhausted in those necessary elements for the development of stalks and seeds, without which no formation of seed can be expected. If he supply the alkalies, lime, and sulphates alone, in a given time he will get no more grain. All constituents of the manure, if they are supplied *alone*, have this great defect, that by them the soil is impoverished in other equally important substances. No *one* of itself can maintain the fertility. Keeping this in view, we may easily judge of the comparative value of artificial and natural manures,

and all the various *arcana* which have been praised as *panaceas* for exhausted soils.

It is not less easy to understand why the farmers have such different opinions on the relative value of the constituents of manures—why one, whose farm is rich in phosphates, produces an uncommon fertility by the application of nitrate of soda, or the supply of alkalies, while another does not see any favorable effect at all; why bones—phosphates of lime—produce in many fields wonders, and are not of the slightest benefit to others, which are deficient in alkalies or alkaline salts. From the composition of animal manures, it results with certainty, that by applying the latter—solid and fluid excrements of men and animals—we supply to the soil not one but all the elements which have been taken away in the harvest. Fertility is perfectly restored to the field by a corresponding supply of this manure, and it may be increased by it to a certain limit. This will be the more intelligible, if we compare the mineral elements of the urine of horses and cattle with the mineral elements of herbs, straw, roots, &c., of our cultivated plants. It will be found that in their quality they are perfectly identical.

CONSTITUENTS.	Urine of a Horse.	Of another.	Of Oxen.
Carbonate of Lime	12.50	31.00	1.07
Do. of Magnesia	9.46	13.07	6.93
Do. of Potash	46.09	40.33	77.29
Do. of Soda	10.33		
Sulphate of Potash	13.34	9.02	13.30
Chloride of Sodium	0.55		0.30

These salts in the urine of horses amount to nearly 4 per cent.; in that of oxen to 2½ per cent. of their weights. If we compare the composition of these different sorts of urine with the composition of the straw of peas, beans, and potatoes, of clover and hay, it will at once be obvious that in stable dung we replace by the urine the alkaline carbonates which we have removed in harvest. What in this urine is wanting in phosphates and carbonate of lime and phosphate of magnesia, forms the principal constituents of the solid excrements of animals; *both together*—solid excrements and urine—restore to the field its original composition, and thus a new

generation of cultivated plants meet with the mineral ingredients necessary for their development. If we farther compare the guano and the feces of men with the composition of the animal urine, the analysis shows that both are entirely defective in *alkaline carbonates*—they contain phosphates and sulphates as well as chloride of sodium, but no free alkali—they contain phosphate of lime and phosphate of magnesia; in short, their elements are in *quality* identical with the important mineral elements of the seeds of wheat, peas, beans. The urine of swine is in its composition intermediate between the urine of man and horses.

ANALYSIS OF THE URINE OF SWINE.

Carbonate of Potash	12.1
Phosphate of Soda	19.0
Sulphate of Soda	7.0
Chloride of Sodium }	53.1
Do. of Potassium }	
Phosphate of Lime }	8.8
Do. of Magnesia }	
Traces of Iron	

The solid excrements of swine contain principally phosphate of lime.

What the practical results of a knowledge of composition of these manures are, is clear. If it were possible to provide our fields with the dung of swine in sufficient quantity, we would replace by it, in a soil which contains *silica* and *lime*, all the retaining elements of the plants—the field might be made fertile for all kinds of plants—we have in it not only alkaline phosphates, the principal elements

of the seeds, but also alkaline carbonates, which are required by the leaves, stalks and roots. This purpose cannot be attained, however, by manuring with guano or human excrements alone, but perfectly so by stable manure, from its containing alkaline carbonates. If I have said that stable manure contains the mineral elements of the nurture of the plants, exactly in a state and condition

in which they are furnished by Nature—that a field manured by it resembles the primitive state of America and Hungary, this assertion will not be found exaggerated. It is certain that stable dung contains no alkaline phosphates, but Nature does not furnish these to the plants even in the most fertile soil, although we find them in large quantity in all the seeds of wild plants. It is obvious that, notwithstanding their absence from the soil, the phosphates are formed in the organism of the plants, and they are produced from the phosphate of lime and magnesia and the supplied alkalies, by an exchange of the elements of each. The alkalies are necessary for forming *alkaline phosphates*, which cannot originate in the phosphate of lime alone. Both together are present in stable dung. In human excrements and in guano, the alkaline carbonates are entirely wanting. The practice of the farmer, in some places, of supplying to the field not pure guano, but a mixture of it with gypsum, shows clearly that the phosphates of alkaline bases are really formed on the organism of the plants from the phosphate of lime and magnesia, because this mixture (guano and gypsum) contains less phosphate of potash or soda than the guano itself; or, in certain proportions of gypsum, no alkaline phosphates at all; the soluble phosphates in the guano decomposing the gypsum into phosphate of lime and magnesia, and into sulphate of potash. I am far from asserting that we should not provide the fields with alkaline phosphates; the excellent effect of the guano and of the human excrements is too well known to question it, and we perceive from this fact that plants are in this respect like domestic animals which, with a normal food, are healthy and strong, but do not fatten. On the contrary, we know that if we prepare the food of these animals artificially, so as to render it more easily digested and assimilated, they are enabled to consume, in a given time, a greater quantity of it, by which all their parts increase in weight. The same happens with plants: if we give them their nourishment in a state most appropriate for assimilation, their capability to attract the gaseous elements from the atmosphere increases and their development is accelerated. If we recollect that the favorable effect of guano upon our fields depends on its amount of *ammoniacal salts*, of *alkaline phosphates* and the *other mineral constituents* of the seeds, but that it is deficient in *alkalies*, the principal constituents of the *herbs, straw and roots*, it is easily understood why the opinions of farmers on the value of guano as a manure are so very different. On a soil which is defective in alkalies its effect is small; on a soil rich in them it increases the produce in a remarkable degree; but, as I have already observed, the continued application of guano must gradually diminish the fertility of our fields for a number of plants, because the elements of those organs, of the leaves, stalks, roots, &c., without which the plants cannot

be developed and cannot produce seeds, are taken off in the harvest without any restoration of them. I think it, therefore, certain that the stable dung can replace the guano to a certain degree, but not *vice versa*. A rational agriculturist, in using guano, cannot dispense with stable dung.

During my excursions in England, I have repeatedly directed the attention of the agriculturists, as Messrs. Pusey and Miles will, perhaps, recollect, to the necessity of supplying the alkalies, and not merely the phosphates and other salts; by a partial supply the equilibrium of fertility is not restored, and if we supply guano alone, we do not act wisely, because we consume our capital by rich interests, and leave to our children an exhausted soil.

And now the principles above-mentioned must guide us in the manufacture of an artificial manure. If they are neglected—if the artificial manure is defective in one or two of the necessary ingredients—the farmer, in making use of it, will, in a very short time, discover the fact by the injury he will have sustained.

In the manufacture of an artificial manure, it must be kept in view that the application of stable dung, of human excrements, and of guano, is attended with a great loss, in consequence of the too great solubility of their most efficacious constituents; and this must be prevented by artificial means. This is evident, if we remember those countries whence guano is derived. It is known that the collection and preservation of the excrements on the African islands, and the coasts of Peru and Chili, depend upon the scarcity of rain in those countries. The best sorts of guano contain, in fact, more than one-half of their weight of soluble salts, which, if exposed to the rain, are in exactly the same condition as, under similar conditions, a heap of *salt*. They dissolve in water, and are removed. Some months of rain would deprive those countries of all their riches. The remainder would have lost the greater part of its fertilizing power. Such effects, however, take place upon the guano with which our fields are manured. Only a small portion of its efficacious salts produce the beneficial effect they are capable of doing, the greater part being carried off by the rain. The stable dung is, in this respect, in the same condition as guano; indeed, its principal compounds are already in a dissolved state, and, therefore, are carried off more easily than those of guano.

A covering for those places in which stable dung is preserved, in order to shelter it from the effects of the rain, has been regarded in Germany as essential for preserving its manuring power. In consequence of the experience that the soluble elements of stable dung are the most efficacious, it has, in some cases, been drawn cut with water, and it has been found advantageous to carry *only this fluid* to the fields. I need only refer to the foregoing analyses of the urine of animals, in order

to see upon which elements of it this effect depends.

The reason why, in certain years, the influence of the best and most plentiful manuring is scarcely perceptible, is that during the moist and rainy springs and summers the *phosphates* and *other salts with alkaline bases*, as also the *soluble ammoniacal salts*, are entirely or partly removed. A great amount of rain and moisture removes, in the greatest quantity, the very substances which are most indispensable to the plants at the time that they begin to form and mature seeds. The system of draining, which of late has been so extensively followed in England, brings the land into the state of a great filter, through which the soluble alkalies are *drawn off* in consequence of the percolation of rain, and it must, therefore, become more deficient in its *soluble* efficacious elements.

Attentive farmers must have observed that after a certain time the quality of the grain on land laid dry according to this principle, deteriorates; that the produce of grain bears no due proportion to the produce of straw.

What is more evident, after these remarks, than that intelligent farmers must strive to

give to the soil the manuring substances in such a state as to render possible their acting favorably on the plants during the whole time of their growth? Art must find out the means of reducing the solubility of the manuring substances to a certain limit—in a word, of bringing them into the same state in which they exist in a most fertile virgin soil, and in which they can be best assimilated by the virgin plants.

The attention which I have paid to this subject has been crowned with success. I have succeeded in combining the efficacious elements of manure in such a manner as that they will not be washed away, and thus their efficacy will be doubled. Owing to this, the injurious consequences of the present system of draining are removed; Agriculture is placed upon as certain principles as well-arranged manufactories; and instead of the uncertainty of mere empiricism, the operations of Agriculture may be carried on with security, and in place of waiting the results of our labors with anxiety and doubt, our minds will be filled with patience and confidence.

(Signed) DR. JUSTUS LIEBIG.

Gießen University, 1845.

NEW GRAPES.

HILL-SIDE, near Meadville, Pa., Nov. 18, 1846.

JOHN S. SKINNER, Esq.—*My Dear Sir*: The letter of Mr. Charles Sears came to hand in an envelop, and with an endorsement from you. In reply—I will take the greatest pleasure in forwarding, by the first opportunity, the cuttings of the White French Grape. They shall be sent, should I be obliged to defer it till our merchants visit New-York in the spring. They will be directed to you or Mr. Greeley. I thank you most sincerely for the grape-seeds. I have not been so selfish as to keep all, but made four parcels, three of which I distributed to friends whom I trusted would appreciate them.

I might mention here that a few days since a friend of mine, Mr. Cady, (near Cleveland, Ohio,) informed me that a neighbor has a valuable translucent white variety of grape, which originated lately as a seedling near a store door—supposed to be from a raisin seed; so that if ever you hear of such a variety in that section, you may recollect its origin when others may have forgotten it, or are ignorant thereof.

Most respectfully, your friend and serv't, JOS. C. G. KENNEDY.

INCREASE IN THE VALUE OF OUR GRAIN CROPS.—A writer in the Boston Courier, over the signature of "J. N. B." estimates the rise in value on the agricultural productions of the United States, since September 1, 1846, as follows: On the crop of Indian corn (estimated at 480,000,000 bushels) the advance (estimated at 25 cents per bushel) is \$120,000,000; on the crop of wheat the advance is estimated at \$56,000,000; on the crop of oats, \$16,000,000; rye, \$36,000,000; on the crop of hay the advance, in consequence of the increased use of corn and other grains for bread-stuffs, is estimated at \$45,000,000; showing a total rise in value of \$273,000,000.

To the above should have been added an estimate of the amount of the rise in the price of beef, which is intimately connected with the price of hay and of corn. What was the price of beef, June, 1846, as compared with June, 1847, when it was 16 to 17 cents for choice pieces? Colonel Thomas Shelby, of Kentucky, had a drove of 400 bullocks to arrive in New-York the middle of May, that were on the road 80 days, and cost \$6,000, from his magnificent blue-grass farm to the New-York markets.

LETTER VIII.

PROSPECTS OF THE WOOL MARKET—FUTURE DEMAND AND SUPPLY.

Amount of Wool which may be grown in the Southern States... If the demand is already supplied, where is it to find a Market?... The cheaper Producer can drive his rival from the market, unless the disparity of Capital is greatly against him... In Individual Capital, the South possesses the advantage over the North... The South can produce Wool cheaper than New-York... North of latitude 40° there will be little difference in the cost of producing Wool... Cost of producing it in New-England—Pennsylvania—New-Jersey—Ohio... The Prairies—Their vast Extent—Their anticipated Advantages for Sheep Husbandry—Flocks driven on them—Anticipations blasted, so far as keeping Sheep economically on the Natural Grasses is concerned... Character of the Prairie Grasses—Flourish but during a short season, rendering the time of foddering longer than even in New-England... Another Difficulty—The Wild Grasses which the Sheep feed on rapidly become extirpated—Statements of the Editor of the Prairie Farmer confirmatory of this, and of the assertion in relation to the length of the time of foddering... His proposition to introduce Grasses which will grow in the Winter—Impacticability—Reasons... Burning over the Prairies—Objections... Indifferent quality of Prairie Hay... Principal Advantages of the Prairies for Sheep Husbandry narrowed down to two—Cheapness of Land—Privilege of Pasturing the Public Lands... The latter Advantage rapidly lessening... Cost of Preparing the Prairies for Sheep Husbandry—Materials for Fences, Buildings and Fuel entirely wanting on the interior of them... Coal for Fuel plenty, but not economically available... Fences—those of earth inadequate... Hedges—Require fences to protect them while growing—Their success then doubtful... Timber may be grown for all of the above purposes, but would raise the cost of the land above those of the Sheep Lands of New-York and New-England... The Shepherd System as a Substitute for Fences—When the Sheep become numerous, it would cost more to keep them in separate flocks than fences cost in the East... Pasturing in Common considered—The Sheep could not be separated for any ordinary purpose of Sheep Husbandry—There would be no protection against theft, promiscuous interbreeding, untimely impregnation—No way of effectually combating contagious disorders—Reasons... Natural and unremovable Objections to the Prairies—Want of Water—A Climate far more fickle and excessive than in the Eastern States... Shown by the record of the thermometrical observations kept at the Military Posts of the United States... These compared... Wool-growing in Mexico—In South America.

Dear Sir: In recommending the production of Wool on a scale so extensive in the Southern States, as I have done in my preceding Letters, the fact should not be lost sight of, that were these recommendations complied with, one of the great staples of commerce would be enormously increased. The Southern States—the ten* to which I have confined all my preceding remarks and estimates—to say nothing of those in the same latitudes west of the Mississippi—include an area of 450,000 square miles, or 288,000,000 square acres. Allow one-eighth of this region to be in a state of cultivation,† or in natural pastures, and we have 36,000,000 acres which could be more or less devoted to the growth of wool. Assuming that, on the average, every two acres would, under proper tillage, support one sheep, (which, it seems to me, they might do with no very material diminution of present staples,) and that the sheep average 3 lbs. per fleece, the annual product of wool would be 54,000,000 lbs. This amount might be indefinitely added to, by diminishing the production of present staples. How far this could be economically done, experience must determine.

If we concede the adequacy of the present supply of wool to the demand, taking the world together, it is apparent that an increase of 50, 75, or 100 millions of pounds, in one quarter, will produce an over-supply, (and thus greatly depress prices,) unless met by an increased demand, or a corresponding diminution in production, in some other quarter. I do not concede the adequacy of the present supply, but shall, however, waive that point.

The question now arises, where is the wool thus produced to find a market, if the South should, within the next ten, fifteen, or twenty years,

* Nine, besides that portion of Louisiana east of the Mississippi.

† Probably the amount in cultivation, including that in natural pasture, is set down pretty high. It may not exceed a tenth.

furnish such a surplus? Where is the present supply to be diminished, or the demand increased?

Where agricultural competition exists, as a matter of course the producer who can supply the market with the least expense to himself, has an advantage which nothing but a disparity greatly against him in capital can overcome. Large capital, satisfied with less gains than small capital, will sometimes sustain competition with the latter, with the advantages of the cheapness of production *somewhat* against it. But where the difference in first cost is considerable, the cheaper producer can always drive his rival from the market. The aggregate agricultural capital in a region of given size in New-York, probably would ordinarily exceed that of an equal territory in South Carolina or Georgia. But it is not so with individual or personal capital. While the agricultural territory and capabilities of the latter States are in a comparatively few hands, those of New-York and New-England are parceled out among a multitude of small holders, who must realize the first class of agricultural profits, to support themselves and their families. The advantage of capital is therefore, in reality, on the side of the South.

But independent of this consideration, I have already attempted to show that the South can produce wool so much cheaper than New-York, that the latter will stand no chance whatever in competing with her more favored rival—so soon as that rival sees fit to avail herself of her advantages. *North of latitude 40° there will be but little disparity in the cost of producing wool*; and therefore if the South can drive New-York to relinquish the production of this staple, she can do the same with all portions of the United States lying north of this parallel, unless on the shores of the Pacific, where the isothermal line is at least 5° north of its course east of the Missouri. I will now enter upon some specifications, and, where necessary, proofs, to sustain this proposition.

New-England has, concededly, no advantages over New-York for the cheap production of wool. Northern Pennsylvania is higher, colder, and more sterile than most of southern New-York. South-eastern Pennsylvania, and the fertile portions of New-Jersey, are the natural producers of bread-stuffs for the less favored regions of those States, and of provisions of all kinds for the New-York City and Philadelphia markets. The high price which good lands bear in the vicinity of such markets, would prevent them from competing with cheap interior lands in wool-growing. There are sheep lands of good quality in western Pennsylvania; and in the southern section, the winters are perceptibly a little shorter than in New-York. This will render the production of wool upon them somewhat less expensive than in the latter State, but it will not reduce it low enough to allow them to compete with the cheaper lands and still shorter winters of the South. The same remarks will apply to the hilly region constituting the south-eastern portion of Ohio.

Proceeding still farther west, we find a region extending to a vast distance whose topographical and geological features, flora, &c., taken in connection, effectually distinguish it from the territory lying east of the Mississippi and Ohio. Vast plains, called *prairies*, (so named by the early French settlers from the French word signifying meadow,) which can be purchased of the Government in the natural state for \$1 25 per acre, and which are usually covered with natural grasses—would seem, if these grasses are adapted to the summer and winter subsistence of sheep, and there are no counterbalancing disadvantages, to unite facilities for the cheap production of wool not possessed in any other region of our country. And such superiority has actually and often been claimed for them.

I propose to investigate this question at considerable length, because there are various considerations which, at first view, give great plausibility to this claim. And if the prairies *can* produce wool cheaper than the South, it is in vain for the latter to embark in the business—at least, beyond the extent of supplying the home demand—for so limitless is the extent of these natural pastures throughout the whole northern basin of the Mississippi, that they could, perhaps, supply the entire market demand of the United States for this staple, for an indefinite period, vast as that demand is destined to be.

But a very few years have elapsed since the most sanguine anticipations were indulged in, by large numbers of our Northern and Eastern flock-masters, in relation to the superior capabilities and advantages of the prairies over Eastern lands for sheep-walks; and large flocks were driven hundreds of miles, lands purchased, and establishments created, to realize these supposed advantages. It is not too much to say that these anticipations—so far at least, as keeping sheep on the *natural* herbage of the prairies is concerned, were briefly and summarily blasted. Many of the flocks driven there, actually perished in the midst of seeming plenty. On the whole, the experiment is generally conceded to have resulted in failure. Let us see whether this was occasioned by mismanagement—temporary and removable causes—or whether we must look for those causes in natural and unchangeable circumstances.

A *portion* of the wild prairie grasses are relished by sheep, and they thrive on them; but these grasses, as well as all the other varieties growing there, flourish during but an unusually limited portion of the season. They begin to dry up and lose their nutritive qualities in midsummer, and long before the foddering season has commenced on the bleakest highlands of New-England, they are as unfit for the subsistence of sheep, as dry *brush*! Where the natural grasses are alone depended upon, the foddering season on the prairies, north of latitude 40°, will range from six to seven months—rarely, perhaps, fall short of six, on lands which have been *previously depastured*, provided the sheep are maintained in good condition.

And there is another material difficulty with the prairie grasses which sheep feed on. They soon—many of them even in a single season—become extirpated if kept fed down while growing. This is so singular a fact in vegetable physiology, that I chose to state it in the words of an intelligent resident of the prairie region—whose local pride and partialities would naturally prompt him to give as favorable a coloring to the agricultural advantages of his chosen home, as a regard for truth would admit of. From a communication of J. Ambrose Wight, Esq., Editor of the *Prairie Farmer*, to L. A. Morrel*—replete with useful information, and characterized by an admirable candor—I make the following extracts:

"Sheep or other stock, but more particularly the former, put upon a given piece of wild prairie, and confined to it, unless the range be very large, would not continue to keep fat one season after another, though they would at first; but if allowed a new range each season, they would always keep fat. The reason is this: Sheep in such cases will go over their range and select such food as they prefer, and will keep at it until it is gone. Hence the wild bean and pea vine, and a few other kinds of plants, will obtain their constant attentions, and will be kept so short that they will, on a given piece of land, die out the first year. Therefore if turned out on the same grounds another season, the best food will be gone, and the poorer, with which they must then take up, and which itself gets continually poorer, will not sustain them in their first condition. A small flock of sheep will thus run over a large extent of ground.

Hence the *utter hollowness* of a supposition which appears to be common at the East, that large flocks of sheep can be sustained on the wild grass of the prairies alone. There are many places, it is true, where a farmer might keep a large flock on the wild prairies

* American Shepherd, p. p. 138—145.

during the summer months with profit, provided he had not too many neighbors in the same business. But such flocks would continually lessen their own range, at the same time that it is lessening by immigration, settlement and extended culture. I have been in the country about nine years; having gone, at the first, into an entirely unsettled region, and have paid much attention to the matter; and it is my belief that the wild prairies are desirable for wool-growing to a very limited degree; but that the cultivated prairies are desirable for this purpose to an almost limitless extent."

The following fully sustains my preceding statements in relation to the time of foddering. In answer to Mr. Morrel's question, "what length of time is foddering necessary in Northern Illinois?" Mr. Wight says:

"The seasons have been extremely variable since my residence here—now nearly nine years. The winter of 1842 and '43 was the severest one since the settlement of the State; and the foddering season lasted from the middle of October to the middle of April. The winter of 1843 and '44, and the present one (1844-5) would require foddering for a less time, by full two months. *This is on the supposition, however, that good artificial pasturage is provided.* If the wild prairies are relied on alone for pasture and hay, full two months must be added to the foddering season; and stock would barely get through at that; and I think that sheep, in multitudes of instances, would perish. In this latitude with Timothy, Red-top and Clover pastures, the average time would be from 4½ to 5 months. If a good blue-grass pasture were provided, in such winters as the last and present, it might be reduced to two months, and I am told that some so provided for, *one hundred miles south of here*, have, the present winter, scarcely foddered a tall. I apprehend, however, that our winters here will always be variable, and that it will be far more difficult to predict their length and intensity than in New-England."

In another place Mr. Wight says:

"If, however, the question is asked, 'Does not the pasture on the prairies fail early in autumn, so as to compel the removal of sheep to other pasture before it is time to go into winter quarters?' I answer, yes—long before. In many sections the prairies afford no adequate pasture for dairy purposes after the first of September. . . . The wild grasses are extremely vigorous while they last, but are all, without an exception, short-lived."

The great diminution of the foddering season, where the domestic or cultivated grasses are already made use of, which Mr. W. anticipates *may* result from the introduction of blue-grass, will be found utterly unattainable. Blue-grass (known as June or spear grass), is one of the commonest varieties in New-York and New-England. Peoria, in Illinois, is in about the same latitude with the City of New-York, and consequently that portion of Illinois north of Peoria, corresponds with a considerable portion of New-York, and all of Connecticut and Rhode Island. And the climate of the former is not less rigorous, and is far more variable, than in the latter named States, as I shall presently show. Now in no portion of New-York or New-England will the blue-grass reduce the foddering season to two months, or anything like it. It is true that small flocks will pick up a subsistence on this and other grasses in the winter, when the ground is not covered with snow, and if the pastures are not fed down in the fall. To suppose, however, that this or any other herbage will *continue to grow*, when the earth is frozen almost to the consistency of a solid rock, far below its lowest roots, is an obvious error. In New-York, the ground remains so frozen usually during the entire winter, and in Northern Illinois the cold is equally intense, and there is less snow to protect the earth from its effects. The ground, therefore, is frozen quite as solidly, and considerably deeper than in the former. Grass left standing for winter consumption, in either State, becomes, by freezing and thawing, tough and innutritious. In New-York, the larger flock-masters have long since ceased to make any provision of this kind, for winter-feeding—preferring to keep their sheep in yards, and entirely from grass.

As Mr. Wight himself very accurately remarks in another part of his communication, "It is found to be decidedly better to keep sheep up in small flocks, with very little ground to run over, while kept on hay, than

to let them run out a part of the time and get such grass as they can pick, while there is not enough to sustain them." But the reason for this given by Mr. W., that "they eat much dirt, are liable to be poisoned and lose their appetite for hay," is very far from being the correct one. Green grass always, in a great measure, deprives sheep of their appetite for dry hay. The grass thus left standing loses its nutritive qualities, so that it will but imperfectly sustain animals, and when the snow falls and covers it, sheep not only cannot obtain it, but they are left without appetite for other food. Open winters, *i. e.*, winters without snow, are always particularly fatal to sheep which are suffered to run on the pastures, in this climate, and for the reasons above assigned. They sometimes appear to be doing well enough up to toward the close of February; but they are imperceptibly losing condition and strength, and when the trying month of March, with its stormy and fickle weather, sets in, they begin to drop off, and all sorts of diseases—grub in the head, "the distemper," etc.—are assigned as the causes.

It is in vain to attempt to shorten the foddering season north of latitude 40°, on this side of the Rocky Mountains, by seeking for any plant to *continue its growth and thus produce green feed in winter*, unless in limited districts, and on the margins of large bodies of water. No plant can draw its nutriment from solidly frozen ground.

Mr. Wight proposes burning over portions of the prairies at intervals, to cause the vegetation to start afresh, and thus prolong the grazing season on the prairies. Mr. Flower makes the same suggestion. In some localities, and under favorable circumstances, this might, temporarily, accomplish the desired object; but as population increases, and buildings and inclosures are erected, it would constantly lead to those unfortunate accidents, which have already, I believe, led at least one of the Western States to prohibit by severe penal enactments, the setting fire to the dead grass of the prairies. Besides, we have Mr. Wight's own authority for stating that sheep actually *extirpate* those of the prairie grasses which they will feed on, so that burning over could not cause *these* to re-sprout the same season or afterward.

It requires but little knowledge of the habits of the sheep to know that grasses rejected by it in summer, will not constitute a proper aliment for it in winter, and that if confined to such food, it will not prosper. A few sheep with liberty to *pick and waste*, will live on very inferior herbage in either summer or winter, (and hence the sanguine and erroneous statements put forth by owners of small flocks on the prairies,) but confine flocks to the same food—flocks which are too numerous to be allowed the privilege of selection and rejection in their food, and the disastrous consequences will not be long in exhibiting themselves.

In reviewing the preceding facts, the principal advantages of the prairies for the production of wool seem to be narrowed down to two points: the cheapness and fertility of the lands, with a contingent right inuring to the settler to use, without paying for it, all the unappropriated public domain! If we admit that the soil of the prairies is as well adapted to the artificial grasses as that of New-York or New-England, (a point which, to say the least of it, is doubtful, for experience has shown it to be otherwise in Michigan and some other portions of the West,) the only peculiar and exclusive advantages which the prairies have over the lands of the old Middle and Eastern States, is their cheapness and freedom from rent where unsettled. Emigration is rapidly abridging the latter privilege, however—more rapidly than can well be appreciated without a reference to the statistics of the several new North-western States. And it will be

remembered that when a prairie is belted round by population, and depastured by numerous flocks and herds, its better grasses—at least for sheep—would be soon exterminated, and, consequently, though there might be ten or fifty thousand acres of common and free pasturage, it would be of trifling avail to the flock-master.

But taking this privilege for what it is worth, and taking into account the difference in the price of lands—calling one \$1 25, and the other \$20 per acre—and then, in my judgment, the Eastern will prove cheaper, all things considered, than the prairie lands, for Sheep Husbandry. I speak, of course, of the prairies as wholes—not of that narrow margin of each, which is attached to the farms lying partly on the outer and wooded lands.

The prairies must first be plowed, undoubtedly,* to seed them down effectually with the cultivated grasses. It requires from four to six yoke of oxen, says Mr. Solon Robinson, to break up from one to one and a half acres per diem. Suppose we concede this expense to be paid for by the first grain crop used as a covering for the grass; then the prairies are to be fenced—adequate buildings and other fixtures provided, for the use of a family, the storage of hay, the shelter of animals, &c. Where are the materials for these things and for fuel to be found, on a plain wholly destitute of trees, unless on the occasional “islands”—and where stones are entirely wanting, excepting sparsely scattered bowlders, and, very rarely, rocky ridges or cliffs? Conceding that all the wood on the margins of the prairies will not be wanted for the local supply—which, as a general thing, it undoubtedly will—what would be the cost of fences, buildings and fuel, where every stick was transported from three to fifteen miles† by land carriage? Fuel, it has been said, can be obtained from the local depositions of coal. It is true that Illinois and south-western Indiana, at least, constitute one vast coal basin. But any one possessing the slightest practical acquaintance with the subject, knows that it requires associated, aggregate and corporate wealth, to carry on mining operations to an extent sufficient to steadily and efficiently supply a considerable market. Even in a level country where coal is covered with a deep superficial deposition of earth, individuals may, where the stratum is cut through or uncovered in ravines or the beds of streams, quarry their own coal; but such opportunities are rare. The idea that individuals would find it within the compass of their means to sink vertical shafts and raise coal—each one for himself—on the bosoms of the prairies, is utterly preposterous. Coal has never yet borne a price in our cities, which would justify even Companies in lifting it by vertical shafts. Let the coal, however, be as cheap as it may be, at the points of excavation, the mere cartage of it, for the wants of a five-months winter—where the thermometer frequently indicates a degree of cold from 5° to 30° below 0°—will be an onerous tax on agricultural industry. And canals can never furrow the bosoms of most of those vast dry plains; and ages must elapse before railroads will so interlace them, as to bring coal cheaply within the reach of population scattered over their entire surfaces.

If we suppose that adequate buildings can be constructed, with sufficient economy, with transported timber, the question still remains, What resource is there for fences? Fences of earth have been proposed, but these will not stand long enough to pay for building, unless their sides are constructed at such an angle as would be wholly inadequate to “turn” sheep. Hedges, besides the other considerable expense of cultivating them, would

* I have seen it stated that the seeds of the cultivated grasses would “catch” sown on the surface of the prairie sod! That they would do this effectually and generally, is an assertion which no practical farmer will credit.

† Prairies are from one to thirty miles in diameter.

require *fences* to protect *them* from animals, until they attained a considerable size; and it is exceedingly questionable whether any good hedge-plant can be found, which is capable of resisting the rigorous and fickle climate of the North-western States. The different thorns, and other plants used in England, have generally failed in all the Northern States.

Timber *may* be *grown*, both for fuel, houses and fences, by the proper planting, cultivation and protection of suitable trees—but the expense and delay attending this course would raise the prairies to, or above the price of New-York and New-England sheep lands.

It has been claimed that the shepherd system will render fences unnecessary, to any but a very limited extent, on the prairies. Now, while there is but here and there a settler on the margins of some of these great plains, and while a flock of sheep can constantly seek new pasturage, as the old fails, over a boundless range, without encountering another man's flock, sheep require so little looking after that the shepherd system is entirely feasible and economical, notwithstanding the high price of labor. Under such circumstances, one man, provided with a horse and a brace of dogs, can perhaps give the necessary attention to 1,000 sheep, and have some time for other occupations. But this state of things, terminated already on most of the prairies this side of the Mississippi, will soon be unknown even on those in the territories bordering on the Missouri and its western tributaries. When wool-growers become to any degree numerous on the borders of the prairies, (as they certainly soon will, if these regions do possess any peculiar advantages for this branch of husbandry,) how are sheep to be kept *separate*, without that multitude of shepherds which the same services require in Spain, Germany, or Australia?—and whose labor and subsistence* would cost more, during a series of years, than the *fences* in regions where wood and stone are plenty.

If the sheep are not kept separate—if allowed to run promiscuously together, how could the property of each holder be separated out of the vast general flock on a prairie five, ten or fifteen miles in mean diameter, for the purposes of slaughter, sale, washing, shearing, folding, or any other incident of their husbandry? What protection would there be against wholesale theft, when no man could count his scattered flock? What would prevent promiscuous interbreeding—and what object would it be, therefore, to attempt to procure choice breeds, or improve those already possessed? What security would there be against those vagabond rams which the carelessness of some individual is always sure to let loose on a neighborhood, to beget lambs on every poorly-fenced farm, to perish in the storms of February and March?† Finally, how could contagious and—unless promptly checked—highly malignant and fatal diseases, like the scab and hoof-ail, be met with the proper vigor, and treated with the necessary skill and care, among a multitude of holders scattered over miles of surface; and supposing all the necessary vigor, skill and care brought into action, what would they all avail where it was impossible to separate the healthy from the diseased—the cured from the sick?‡ Let either of these diseases break out among a flock of ten thousand sheep, running together without inclosures, and any one familiar with their diagnosis and treatment, knows that if it were possible to drive them from the flock—which is extremely doubtful—it would cost far more than the value of the

* Costing four or perhaps six times more in this than in the former countries.

† It is questionable whether in a flock running in common on a prairie, one ewe in ten would escape untimely impregnation.

‡ Both of these diseases are susceptible of being communicated from a diseased sheep to one but recently cured of them; consequently, separation is the only safe and economical method, in large flocks, to prevent constant reinoculation.

sheep. True, these diseases have not yet visited, so far I am aware, the Western States. The scab is, in fact, but little known at present in any part of the United States. It may at any time, however, reappear.* The hoof-ail, after the fury of its first onset is over, assumes a milder form—one which does not lead to death, if remedies are applied but once or twice during a season—and for this reason, probably, it is allowed to linger in many flocks in the sheep-growing regions of the U. S. It is a strictly contagious disease, and one animal having it would rapidly inoculate, in the hot weather of summer, by itself and others receiving the disease from it, one or five hundred thousand sheep having access to each other. A few years since it was a stranger to *this* region. Like the small-pox when unchecked by vaccination, or any other contagious malady, it gradually progresses from neighborhood to neighborhood—from State to State. Good fences, confinement to the farm, and a rigorous system of exclusion of all strange sheep, may and do save many flocks from its visitation, but accidents and acts of carelessness are constantly occurring—and so long as they continue to occur, this malady will continue its onward march. I consider it just as certain that it will visit and sweep over the North-western States, as I do that flocks are scattered along between those States and the present seat of the disease. And when it does visit them, if it finds any great flocks congregated on the prairies, not in a situation to be immediately divided into small flocks, I venture to predict that, with all the care and attention which the sheep *will* receive, the miserable animals, eaten while yet alive by maggots—and festering in loathsome rottenness, will perish in multitudes—by whole flocks.†

Another objection to pasturing in common, would arise in the difficulty, if not impracticability, of establishing and *enforcing* an equitable system of joint occupancy, over or around a large prairie, so as to compel each farmer to regulate the number of his flocks and herds by the amount of cultivated pasture possessed by him.

But if we concede all the preceding difficulties to be removable, or even removed; if we suppose the great north-western plains to be amply supplied with materials for building, fences, and fuel—there are two other difficulties in the way of their becoming the best class of sheep-walks, which, from their nature are fixed, and, in the main, unchangeable. I allude to the *scarcity of water*, and the *climate*.

On the “dry and rolling prairies”—those claimed to possess the greatest advantages for Sheep Husbandry—running water is scarce, frequently extremely so. The occasional streams are shallow and sluggish. Washing wool on the back of the sheep, conduces, I think, to the health of the animal. It causes the sheep to shear much more easily—brings the wool into a better marketable condition, and diminishes transportation. Streams of considerable depth and rapidity (where, what is better, falling sheets of water over mill dams, &c., cannot be found), are almost indispensable to an effectual performance of this process. Sheep, also, in many periods of weather, *require* water for *drink*. When they are confined to dry feed, it is indispensable, in the absence of that snow which is often, in the Eastern States, made a substitute for water. Neither are attainable during considerable periods each winter, on the prairies, without resort to a pump—a sorry—and, (including the time of working it, when large flocks are to be watered), an expensive and troublesome substitute for running water.

Finally, the climate of the Western and North-western States is *more*

* Since writing the above, I have found, to my utter surprise, that this disease is within three miles of my own farm, in a flock driven into the country last fall.

† A history of this disease and its gloomy diagnosis, when neglected, will be given in a subsequent Letter.

variable—exhibits *more sudden and greater extremes*, than the climates of New-York and New-England. The weak and easily prostrated muscular and vascular system of the sheep, will better endure great extremes of continuous heat or cold, than rapid and marked variations in temperature. Subjected to the latter, catarrh not violent enough to kill in its inflammatory stage, but assuming a chronic form—and followed by a slow and wasting debility, frequently attacks flocks. Sometimes it assumes an epizootic and malignant character—as during the past winter—and sweeps away thousands of sheep.

The isothermal line (or line of equal mean heat), does not vary particularly between the same latitudes in New-York or Wisconsin—or between Virginia and Missouri. But as we leave the ocean and other large bodies of water, the isothermal and isothermal lines are found to diverge more and more from the isothermal one—and the range of the thermometer (the extremes of heat and cold indicated by it), rapidly increases. The following Table of temperatures, kept by officers in the Army, for a series of nine years, is from Doct. Forry's excellent work on the "Climate of the United States, &c."* It strikingly illustrates the fact asserted. The four points specified are in about the same latitude.

	Highest.	Lowest.	Annual Range.
Fort Wolcott, Newport, Rhode Island.....	85	+2	83
Fort Trumbull, New-London, Conn.....	87	+9	78
Fort Armstrong, Rock Island, Ill.....	96	-10	106
Council Bluffs, near the confluence of } the Platte and Missouri }	104	-16	120

Doct. Forry states that the mean annual range of the thermometer at the following places, is as follows: at Fort Sullivan (Eastport, Me.) it is 104°, while at Forts Snelling (confluence of the St. Peter's and Mississippi in Iowa) and Howard, (Green Bay, Wisconsin,) in about the same latitude, it is respectively 119°, and 123°.

At Fort Preble (Portland, Me.) Fort Niagara (near the mouth of the Niagara River, N. Y.), Fort Constitution (Portsmouth, N. H.) it is 99°, 92°, and 97°; at Fort Crawford, (confluence of the Wisconsin and Mississippi Rivers in Wisconsin,) on the same parallel, it is 120°.

The above instances are not isolated ones. The same law is found—other things being equal—to generally prevail throughout our own, and perhaps all other countries.†

While the cold of the Northern, and particularly the North-western States, so greatly exceeds that of the Southern States, few would be prepared for the proposition that the extremes of heat in the former, often reach points unknown many degrees farther South! Yet such is the fact!

Fort Snelling, in latitude 44° 53', and occupying a central position in that vast territory lying between the Great Lakes and the Missouri, and between the 41st and 49th parallels of latitude—and which may therefore be presumed, to a certain extent, to afford a type of the climate of that whole region—feels a maximum summer heat of 93°—*the same* with that of Washington City, in latitude 38° 53', and Old Point Comfort, Va., in latitude 37° 2'. At Fort Johnston, on the Coast of North Carolina, in latitude 34°, the maximum heat is but 90°; at Fort Moultrie, in Charleston Harbor, in latitude 32° 42', it is also 90°; at Fort Marion, St. Augustine, Florida,

* See the above named work, p. 43. I am also indebted to Doct. Forry for all the records of thermometrical observations, at the U. S. military posts, which are subsequently quoted.

† Local exceptions exist, owing to the prevailing winds and other causes. For example, Fort Howard is much nearer a large body of water than Fort Snelling. Altitude also exerts its influence.

in latitude $29^{\circ} 50'$, it is 92° ; at Fort Brooke, Tampa Bay, Florida, in latitude $27^{\circ} 57'$, it is 92° ; and at Key West, *the most southern possession of the United States*, it is 89° !

It will thus be seen that the summer heat rises higher at Fort Snelling than at points on the sea-board more than 20° farther South!

Now let us compare their winter temperature. The minimum temperature of Fort Snelling is -26° .* That at Washington is $+ 9^{\circ}$; Old Point Comfort $+ 20^{\circ}$; Fort Johnston $+ 28^{\circ}$; Fort Moultrie $+ 21^{\circ}$; St. Augustine $+ 39^{\circ}$; Tampa Bay $+ 35^{\circ}$; Key West $+ 52^{\circ}$! So the greatest cold of Fort Snelling is 35° below that of Washington—the most northern and by far the coldest of these posts—and it is actually 78° below that of a post, (Key West), which its summer heat exceeds by *four* degrees!

At Fort Howard, latitude $44^{\circ} 40'$, the seasons are even more violently contrasted. Its maximum heat is 98° , its minimum— 25 . At Rock Island, Ill., latitude $41^{\circ} 28'$ we have already seen that the maximum is 96° , the minimum— 10° ; and at Council Bluffs, latitude $41^{\circ} 45'$, the maximum 104° , the minimum— 16° ! At Petite Quoqueille, near New-Orleans, the maximum is but 94° , the minimum $+ 30^{\circ}$!

And an examination of the *monthly* variations in temperature, at our North-western posts, will show that these are as excessive, in proportion, as those of the year—and their suddenness can scarcely be credited by an inhabitant of southern regions—more particularly those bordering on the Atlantic and Gulf of Mexico.†

It cannot be said that Fort Snelling, or Rock Island, or Council Bluffs, have the summers of Italy or the South of France—for the weather is much hotter at intervals, and is subject to far more frequent, abrupt and violent changes than in the latter: nor have these posts winters as mild as those of Europe, many degrees farther north.‡ And their winter exhibits the same sudden and violent changes which characterize the summer climate.

These facts, in my judgment, fully explain the remarkable mortality in the flocks which have been carried on the prairies, and which is usually attributed to over-driving, poisoning, &c. The climate itself, though not always a rapid, will prove one of the surest of *poisons*, unless great care—much greater than is requisite even on the bleak and sterile hills of New-England—is taken to protect them from its deleterious influences.

Facts sufficient have been adduced, probably, to convince every Southern man how much he has to fear, ultimately, from prairie competition, in the production of wool. Having thus attempted to measure the capabilities of the various regions of our own country for the cheap production of this staple, it may be well to turn our eyes to the comparative advantages of other countries and nations—and to ask the question whether there is any danger to the domestic producer from *foreign competition*. This can be done but briefly and rapidly in the limits which I have assigned to myself.

It will not be necessary for the purposes of the present inquiry, to examine the climate, flora, &c., of all portions of the world. The wool-producing countries—those which have natural advantages to enable them to produce wool cheaply enough, and in sufficient quantities, to stand any chance in the general competition, are mainly embraced in a belt or region

[* It will be understood that the sign — before the number of degrees, indicates that it is that number of degrees below Zero, and the sign + used here, in the preceding Table, and in the subsequent paragraph, to avoid confusion, signifies above Zero. Publisher.]

† In the Report of the Fishing Creek Agricultural Society, of your State, 1843, the Committee actually complain of the variableness of the climate! Truly, 'we can only judge by comparison!'

‡ The mean winter temperature of North Cape in Norway, latitude 71° , is $23^{\circ} 72'$ —that of Fort Snelling, $15^{\circ} 95'$ —that of Council Bluffs, $24^{\circ} 47'$ —that of Rock Island, $26^{\circ} 86'$.

about 15° in width, on each side of and at varying distances from the Equator. The variation corresponds with the variation of temperature; in other words, the wool zone is bounded by isothermal instead of latitudinal lines. Commencing on the eastern side of each continent, in the northern hemisphere, between about 30° and 45° , it bears northwardly, and strikes their eastern shores, say between 40° and 55° . In the southern hemisphere, I am not aware that the isothermal deviations, in the corresponding parallels, have been noted—nor are they important, so small, comparatively, is the latitudinal area of the surfaces included between them.

Independent of minor deviations everywhere exhibiting themselves in the isothermal lines, more important local exceptions exist in many places, owing to elevation, proximity of bodies of water, prevailing winds, &c. Thus, south of latitude 30° in North America, the elevations of the Cordilleras give the mild weather of the temperate, and even the rigors of the frozen zone; and the same is true of the Andes of South America—in Bolivia, Peru, Ecuador and New-Grenada—in the same latitudes, where, at the eastern foot of these declivities, the tropical sun burns up, as with fire, the verdure of the vast *llanos* of Brazil and Venezuela, and exhales death from the pestilent fens of Guiana, and the reptile-teeming marshes of the Amazon. The same exceptions exist on the Eastern Continent, wherever mountain chains rise to sufficient elevations to bring to bear this well known and uniform law for the depression of temperature, albeit in tropical or subtropical regions. The steady and mild climate of the Atlantic Ocean, and its continual and peculiar motion on the west of Europe, preventing the ice, which the north wind wafts down from the Arctic seas, from lodging itself, or even approaching* those shores, strongly influences the climates of the British Islands and Norway, rendering them more temperate than others many degrees farther south in the interior of Europe and Asia. Eastern Prussia, and Polish Russia, are rendered disproportionably cold by the prevailing wind, which sweeps without resistance from the bosom of the Arctic Ocean to the Carpathian Mountains: and the north-east wind, laden with the frosts of Siberia, and untempered by the southern winds, from which it is cut off by the lofty Altay Mountains, carries a cold under which men, nay whole caravans,† perish in Persia, in the same latitude with Northern Africa, and the confines of the burning Sahara.‡ The Caspian and Black Seas—Mounts Caucasus and Taurus prevent Asiatic Turkey, and Mount Hæmus, European Turkey—from experiencing similar cold. The same wind entering Europe, reduces the temperature of its eastern considerably below that of its western confines; and its effects are felt more or less westwardly, in proportion as its course is arrested by mountains. The climate of Silesia and Saxony is far colder and more mutable than that of Bohemia, from which they are only separated by the Erzgebirge and Riesengebirge. In Northern European Russia, in Finland and the basin of the Dwina—in the same latitudes where Norway exhibits the

* Malte Brun's Geography—Art. Climate of Europe.

† Sir Robert Kerr Porter.

‡ From the delightful Arabian Nights—from the not less delightful strains of Lalla Rookh—from a thousand other sources, remembered and unremembered—song, fiction and Oriental tale—Persia always rises before fancy's eye a realm and clime of beauty:

“— deep myrrh-thickets blowing round
The stately cedar, tamarisks,
Thick roseries of scented thorn,
Tall orient shrubs, and obelisks
Graven with emblems of the time,
In honor of the golden prime,
Of good Haroun Alraschid.”

There are portions of Persia where the soil is rich and the climate delightful—but, as a whole, it is a bleak, sterile, unfruitful country—large portions of it covered with rugged mountains or saline deserts—with a climate remarkable for the rapidity and extent of its variations.

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flora of Northern Germany—spirits freeze and quicksilver becomes malleable. But it is unnecessary to continue this enumeration.

Let us now take a rapid view of the wool-growing countries embraced in the specified zones. And we will first complete the description of our own continent.

Mexico—that portion of it north of latitude 30°—bears too close a resemblance to our Western Territories conterminous with it, to require separate notice.

But a small proportion of the great peninsula of South America is included between the 30th and 45th parallels of latitude, and admitting, what seems probable, that the contiguity of two great oceans would so affect the climate as to carry the northern line of the wool zone a little nearer to the Equator, this zone would still embrace but, say, two-thirds of Buenos Ayres, nearly all of Chili, the little State of Uruguay, a mere point of Brazil, and the north of Patagonia.

The growing of wool has already been commenced on the vast *pampas** of Buenos Ayres—though as yet to a but limited extent. In 1832, the export of wool to Great Britain was 32,052 arrobas;† but the same year the import of English woollens considerably exceeded it in value. The United States Tariff on foreign wools costing 7 cents per pound or under, being then but 5 per cent. *ad valorem*, the importation of wool of that quality from the Argentine Republic‡ into our country in the fiscal year ending June 30, 1846, was 4,295,659 lbs., and of wool costing more than 7 cents (paying a duty of 30 per cent. *ad valorem*, and a specific duty of 3 cents per pound) the import was 43,831 lbs.||

The *pampas* resemble the North American *prairies*, being plains covered with wild grasses, and entirely destitute of timber. The land is divided by the Government into estates a league square (5,760 acres,) and sold at 10 cents per acre. Until recently the *pampas* were depastured almost exclusively by horses and cattle, and so plenty and cheap were they, that they were frequently killed for their hides alone. The herdsmen and shepherds live in miserable huts, and temporary folds are formed of the trunks of peach-trees. Western or south-western winds called *pamperos* often sweep the country with destructive fury, and there are instances in which flocks of sheep have been forced by them into streams and have perished.

The inhabitants of the *pampas* are, on the north, the *Gauchos*—descendants of Spaniards—who, living in the saddle, and content to subsist on jerked beef and cold water—having few wants, and none which the *lasso* will not supply—lead a life of wild and roving liberty. Tribes of mounted Indians, wild, predatory, and constantly at war with the *Gauchos*, occupy the southern *pampas*.

The facilities for producing wool here closely resemble those of the North American *prairies*, though wood is wanting over much more extensive tracts. The price of land on the *pampas* is less, but they are more remote from markets, as there is little or no manufacturing done in South America. Besides the cost of transportation, wool must pay, before reaching market, the duties levied by some foreign nation. The duty in the United States, by the Tariff of 1846, is 30 per centum *ad valorem*, without regard to quality, thus discontinuing that great discrimination in favor of the coarse article, which allowed a large proportion of the wools of

* This word, like *llanos* in the Northern States of South America, and *prairies* in the North-Western United States, is applied to extensive plains. Those in the North of Chili are called *pampas del sacramento*.

† McCulloch's Commercial Dictionary. An arroba is 10½ lbs. avoirdupois.

‡ Buenos Ayres is so known in all the official documents of the United States.

|| Report of the Register of the Treasury, Dec., 1846.

Buenos Ayres, Africa, Turkey, &c., to enter our ports under a merely nominal duty. The present Tariff raised the duty on these wools to *six times* the former rate, *i. e.*, on wools costing 7 cents, from $3\frac{1}{2}$ mills to 2 cents and 1 mill per pound. This will make an important difference to the foreign grower and exporter. If these wools continue, as hitherto, to be imported in the grease and dirt, from which state they lose about half weight in being brought as clean as well washed United States wool, every pound of them so imported will actually pay a double duty, or 4 cents and 2 mills, half of this being paid for *dirt*. If, on the other hand, they are washed prior to exportation, a reduction of 50 per cent. in their weight will call for a corresponding advance in their price. Wool now costing 7 cents at Buenos Ayres or Smyrna, will cost 14 cents; and if this is exported into the United States, it must pay a duty of 30 per cent., or 4 cents and 2 mills per pound. It will be seen, therefore, that the lowest priced foreign wools cannot enter our country without paying about this duty (4 cents) per pound, unless under fraudulent invoices; and this, as has been already shown, is *half* the cost of producing wool throughout a region of the United States much greater in extent than all that portion of South America included within the wool-growing zone.

The English duty on wools costing less than 24 cents is 1 cent per pound; over 24 cents, 2 cents per pound. The French duty is 22 per cent. *ad valorem*, without regard to cost.

The security of life and property is far less in Buenos Ayres than in the United States; the character of the agricultural population less industrious, less skillful, and less methodical. Capitalists from other countries may, on account of the cheapness of the lands, make it profitable to purchase large *estancias*, and raise vast flocks of sheep; and this has already been done by a few Europeans. But the pampas are subject to the same general objections* with the North American prairies, and when the contagious diseases, adverted to in speaking of the latter, once obtain a footing on them, it is not difficult to predict how those diseases will be encountered by the wild and, so far as agricultural labor is concerned, indolent Gaucho. The difficulty of encountering them, with the best skill and industry, under such circumstances—of preventing their unlimited spread, constant return and frightful mortality, on plains without inclosures, where flocks have access to each other, or straggling sheep from one flock are liable, by every-day casualties, to be thrown among those of another flock—has been stated.

It is not improbable that while land remains so low, and the sheep healthy, the actual cost of production in Buenos Ayres will be somewhat less than in the United States; but taking all things into consideration, and looking to the future, I would sooner advise any one, even in an exclusively economical point of view, to purchase the cheap lands of our own Southern States for the objects of Sheep Husbandry, than any part of South America. With the present duty and the cost of transportation against the latter, there is no fear that it can undersell, in *our* markets, the produce of the former. The 7-cent South American wools, washed, will cost 14 cents, and washing will add about 1 cent a pound to the cost.† Add another cent for agent's commission, and also the U. S. duty, and the wool is brought to 20 cents a pound, independent of freight and insurance, which will carry it, I should think, to about two shillings. The United States producer can furnish wool of much better quality than the coarse South American article, at this price, and realize a high profit.

* Unless it be climatic ones. On this point I have no information.

† This will be attended with much trouble on large portions of the pampas, as on our prairies.

But is it said that the 7-cent South American wool sold in our markets in 1845 and 1846, was not all *coarse*—that much of it was actually of a superior quality? This is true. Many of the bales were *partly* made up of an article ranging with American Merino and Saxony wools. But there is little doubt that, to say the least of it, in *very many* such cases, if the invoice of the wool was not fraudulent, nominally, it was rendered so, in reality, by a previous fraud. The *modus operandi* is said to have been as follows: A sends his agent B to Buenos Ayres with instructions to purchase the best lots of wool and pay their market price; and he farther gives him secret instructions to re-sell these wools to C (a second agent) for 7 cents per pound, ostensibly in the ordinary course of business. The second agent C is subsequently sent out to buy, with no *information* of the mission of his predecessor; if he *suspect* the fraud, he has no *direct knowledge* of it, and having purchased wool for 7 cents which cost B 15 cents, he can invoice it at the former rate and support the invoice by his oath.

I have no *direct proof* of an instance of this species of fraud. The commonness of such transactions, however, was claimed to be a matter of perfect notoriety, by individuals who had investigated the subject. Allegations of this kind have appeared again and again in the most public manner, and I have yet to listen to the first denial of them, public or private. Fraudulent invoices are no new thing in our commercial history,* and the great discrimination made by the Tariff of 1842, in the duties on wool, offered the strongest temptations to them. The same kind of fraud may be still practiced, but the inducement to risk seizure for undervaluation is less where the diminution of duty is merely *pro rata* with the diminution of cost, and where getting the latter invoiced at as low a rate as 7 cents, is not followed, as before, by escape from a specific duty and a sudden descent of *five-sixths* in the *ad valorem* one.

I am free to confess, however, that it has always seemed to me that a determination to vigorously and faithfully discharge their duty in the premises, with a competent *practical knowledge of the quality of the article*, in the proper Custom-House officials, would always, in an unmanufactured staple, and one so readily classified and valued as wool, be a sufficient safeguard against fraudulent undervaluation, to any extent, in the invoice. They might perhaps be undervalued one or two cents on the pound, without making a case strong and obvious enough to justify appraisers in legalizing a seizure; but it is not for gains like these that perjuries would be ventured upon, or double agents and other expensive arrangements for the perpetration of more roundabout frauds, be found profitable.

Not having room, within the limits of this letter, to discuss the capabilities of the Old World to compete with us in wool growing, I will reserve that subject for my next.

* If any one dreams they are, let him read a speech on the Tariff made by Mr. Buchanan in the U. S. Senate in 1842—another by Mr. Webster on *ad valorem* duties, made in the same body July 25, 1846, &c.

TO PREVENT FLIES TEASING HORSES.—Every merciful man who works a horse during the hot months, can promote its comfort by the use of the following simple shield against the teasing of flies. Take two or three handsfull of walnut leaves, upon which pour two or three quarts of cold water; let it infuse one night, and pour the whole, next morning, into a kettle, and boil for a quarter of an hour; when it is cold it is fit for use. Moisten a sponge with it, and before the horse goes out of the stable, let those parts which are most irritable be smeared over with the liquor. Try it.

AGRICULTURAL EDUCATION.

ACCUMULATING SIGNS IN FAVOR OF A GENERAL SYSTEM OF APPROPRIATE EDUCATION
FOR AGRICULTURISTS—VOICE OF "THE CULTIVATOR."

WE copy with inexpressible pleasure the following from the last Albany Cultivator. The deservedly wide circulation and influence of that journal will materially assist in the consummation of what every man of discernment must see is indispensably necessary to push the improvement of Agriculture to that pitch which other arts have reached, and reached only by bringing Science to bear on their progress and development. The people are rousing up to a sense of the "fixed fact" that while they are taxed some ten or twenty millions a year for the support of armies and navies, and for illustrations and instruction to advance military science, they have a right to insist on retaining or getting back a small modicum of the contributions out of their own pockets, for that kind of instruction which will improve them in the practice of that beneficent art which distributes its own abundance and prosperity to every other class of society. We shall be glad to follow in the wake of the Cultivator, and are not ashamed to cry "Help! help!" to every press in the Union, in such a cause.

The Cultivator is remarking on the Reports of Committees of the New-York Legislature at its late session, *pro and con*, on "several Petitions presented by the Farmers' Club of the American Institute, asking aid from the State for the establishment of an Agricultural School and Experimental Farm, to be placed under the care of the Institute":

The Committee, however, recommend the study of Agriculture by means of books, in the Normal School, and in the academies and local institutions which are already established and endowed in all parts of the State.

We do not propose at this time to discuss the principles set forth in either of these Reports, but will merely remark that it is gratifying to see that the agricultural interest is steadily and surely advancing to the position which it is entitled to hold, and from which it will, at no distant period, exercise its due influence on our legislative councils. The first and principal step toward securing this object is the proper education of the rising generation of agriculturists. We are confident that causes are now in operation which

will ultimately produce the desired result. The language used by Mr. Beckwith, in closing his Report, happily expresses our own views:

"We hope the day is not far distant when an uneducated farmer will be as rare a person as an uneducated lawyer, physician, or minister. We mean, too, by an education, something more than a knowledge of the mere routine of the farm and farming operations; we mean by the term, a mental training, by which the man who works amid the complicated arrangements of the subtle and refined agencies of Nature, will be able to understand those arrangements and give direction to the laws which control them."

As to "the Normal School," which we suppose to be referred to as "already established"—at Albany, we presume—we can only take time, for the moment, to say that we never experienced half as much pleasure as we did by a visit to it of our own seeking in company with Mr. Randall, now of Virginia. We were penetrated to the soul with the consciousness of the vast importance of the principle carried out in it; and we do not see, as we have before said, why it might not be so extended (in connection with a farm where principles should be illustrated and sustained by practice,) so as to throw a deeper infusion of agricultural science in the Common Schools of the State.

What would not \$100,000 a year accomplish, applied to that object? It would

in ten years supply scientific teachers for at least one head school at the seat of Government of every county, if not in every district school; and why should not the great State of New-York demand that much, out of the \$4,000,000 we shall be getting from the sale of the Public Lands? Look at the amount she contributes by her consumption of dutiable articles to the treasure of the Union.—Well, we have no time to dwell on the subject at which the coldest bosom must kindle with anxiety. We shall wait, hopeful and impatient, to hear what Governor WRIGHT will say on the subject.

ORCHARDS.

AN ORCHARD is an inclosure devoted to the cultivation of hardy fruit-trees. In it may be, as standards, apple-trees, most sorts of pears and plums, and all sorts of cherries, which four are the chief orchard fruits; but to have a complete orchard, also quinces, medlars, mulberries, service-trees, filberts, nuts, barberries, walnuts and chestnuts must be included. The latter two are particularly applicable for the boundaries of orchards, to screen the other trees from impetuous winds. A general orchard, composed of all the before-mentioned fruit trees, should consist of a double portion of apple-trees. With respect to the situation and aspect for an orchard, avoid very low, damp situations as much as the nature of the place will admit; for in very wet soils no fruit-trees will prosper, nor the fruit be fine; but a moderately low situation, free from copious wet, may be more eligible than an elevated ground, as being less exposed to tempestuous winds; though a situation having a small declivity is very desirable, especially if its aspect incline toward the east south-east, or south, which are rather more eligible than a westerly aspect; but a north aspect is the worst of all for an orchard, unless particularly compensated by the peculiar temperament or good quality of the soil. Any common field or pasture that produces good crops of corn, grass, or kitchen-garden vegetables, is suitable for an orchard; if it should prove of a loamy nature, it will be a particular advantage; any soil, however, of a good quality, not too light and dry, too heavy, stubborn, or wet, but of a medium nature, friable and open, with not less than one spade deep of good staple, will be proper.

PREPARATION OF THE GROUND.—The preparation of the ground for the reception of the trees, is by trenching one or two spades, as the soil will admit. And if in grass, turn the sward clean to the bottom of the trench, which will prove an excellent manure. The ground must be fenced securely against cattle, &c., either with a good ditch and hedge, or with a paling-fence, as may be most convenient.

METHOD OF PLANTING THE TREES.—The best season for planting all the sorts of fruit-trees is autumn, soon after the fall of the leaf, from about the latter end of October until

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December, though it may be performed any time in open weather, from October until March.

Let several varieties of each particular species be chosen that ripen their fruit at different times, from the earliest to the latest, according to the nature of the different sorts, that there may be a sufficient supply of every sort during their proper season; and if apples and pears, in particular, choose a much greater quantity of the autumnal and late-ripening kinds than the early sorts; but most of all of apples; for the summer-ripening fruit is of short duration, only proper for temporary service: but the later-ripening kinds keep sound some considerable time for autumn and winter use. The arrangement of the trees in the orchard must be in rows, each kind separate, at distances, according to the nature of growth of the different sorts; but for the larger-growing kinds, such as apples, pears, plums, cherries, &c., they should stand from twenty-five to thirty or forty feet every way asunder, though twenty-five or thirty feet at most is a reasonable distance for all these kinds. Each species and its varieties should generally be in rows by themselves, the better to suit their respective modes of growth. Stake the new-planted trees, to support them in their proper position, and secure them from being rocked to and fro by the wind, which would greatly retard their rooting afresh, placing two or three strong, tall stakes to each tree; but the most effectual method is to have three stakes to each, placed in a triangle, meeting at top near the head of the tree, wrapping a hay-band round that part of the stem to prevent its being barked by the stakes or tying; then tie the stakes at top close to the tree with some proper bandage, bringing it close about the stem and stakes together, over the hay-wrapping, so as to secure the tree firmly in an erect posture. If laid down in grass, no cattle should be turned in to graze at large, unless the stem of each tree is previously well secured with posts and railing, or wattled with thorn-bushes, especially in young orchards, otherwise they will bark the trees; nor should large cattle be turned into orchards where the branches of the trees are yet low and within their reach.

[Abercrombie.]

EGGS AND POULTRY.

AMONG all nations, and throughout all grades of society, eggs have been a favorite food. But in our cities, and particularly in winter, they are sold at such prices that few families could afford to use them at all, and even those in easy circumstances consider them to be expensive for common use. There is no need of this. Every family, or nearly every family, can, with very little trouble, have eggs in plenty during the year; and of all the animals domesticated for the use of man, the common dunghill fowl is capable of yielding the greatest profit to the owner. In the month of November I put apart eleven hens and a cock, and gave them a small chamber in the wood-house, defended from storms, with an opening to the south. Then food, water and lime were placed on shelves convenient for them, with nests and chalk nest-eggs in plenty. These hens continued to lay eggs through the winter. From these eleven hens I received an average of six eggs daily during winter; and whenever any one of them was disposed to sit, namely, as soon as she began to cluck, she was separated from the others by a grated partition, and her apartment darkened. These cluckers were well attended and well fed. They could see and partly associate through the grates with the other fowls, and as soon as any one of these prisoners began to sing, she was liberated, and would very soon lay eggs. It is a pleasant thing to feed and tend a bevy of laying hens. They may be trained so as to follow the children, and will lay in a box. Egg-shells contain lime, and when in winter the earth is bound in frost, or covered with snow, if lime be not provided for them they will not lay; or if they do, the eggs of necessity must be without shells. Old rubbish lime, from chimneys and old buildings, is proper for them, and only need to be broken. They will often attempt to swallow pieces of lime and plaster as large as walnuts. The singing hen will certainly lay eggs if she find all things agreeable to her; but the hen is so much a prude—as watchful as a weasel and fastidious as a hypocrite—she must, she will have secrecy and mystery about her nest. All eyes but her own must be averted. Follow or watch her, and she will forsake her nest and stop laying. She is best pleased with a box covered at the top, with an aperture for light, and a side door by which she can escape un-

seen. A farmer may keep 100 fowls in the barn, may suffer them to trample on and destroy his mows of grain, and have fewer eggs than the cottager who keeps a dozen, provides secret nests, chalk nest-eggs, pounded bricks, plenty of corn or other grain, water and gravel for them, and takes care that his hens be not disturbed about their nests. Three chalk eggs in a nest are better than one, and large eggs please them most. I have smiled to see them fondle round and lay in a nest of geese eggs. Pullets will begin to lay early in life, when nests and eggs are plenty, and when others are chuckling around them. A dozen dunghill fowls, shut up away from other means of obtaining food, will require something more than a quart of corn a day. I think fifteen bushels a year a fair allowance for them; and after they have become habituated to find at all times a plenty in their little manger, they take but a few kernels at a time, except just before going to roost, when they will take nearly a spoonfull in their crops; but just so sure as their provisions come to them scantied or irregularly, so sure will they raven up a whole cropfull at a time and stop laying. A dozen fowls well attended will furnish a family with more than two thousand eggs a year; and one hundred full grown chickens for the fall and winter stores. The expense of feeding a dozen fowls will not amount to more than eight bushels of grain. They may be kept in cities as well as in the country, and will do as well shut up the year round as to run at large. A grated room well lighted, ten feet by five, partitioned from a stable or outhouse, is sufficient for the dozen fowls, with their roosting, nests and feeding-troughs. In the spring of the year five or six hens will hatch at a time, and the fifty or sixty chickens may be given to one hen. Two hens will take care of one hundred chickens well enough until they begin to climb their little stick roosts. They then should be separated from the hens entirely. I have often kept the chickens when young in my garden. They keep the May-bugs and other insects from the vines. In case of confining fowls in summer, it should be remembered that a ground floor should be chosen; or it would be just as well to set in their pen boxes of well-dried, pulverized earth, for them to wallow in during warm weather. Their pens should be kept clean. [Scot. Ref. Gaz.

WHEAT.—One hundred parts of wheat grown on a soil manured with cow-dung, afforded only 11.95 parts of gluten, and 62.34 parts of starch; while the grain grown on land manured with human urine gave 35.1 of gluten, or nearly three times the quantity.

THE BAROMETER.

THE PRACTICAL USE OF THE BAROMETER TO FARMERS AND OTHERS, WITH RULES
FOR PREDICTING THE WEATHER.

THE proper use of the Barometer as a means of judging of the weather is not generally known, or its great practical value would be more extensively appreciated, more especially by farmers. It is only necessary to be well acquainted with the nature of its indications to form a tolerably good, and mostly a correct, estimate of the impending weather. For this purpose, it is here proposed to embody the most approved rules relative to the Barometer; and it may be remarked that if all persons, affected in any way by changes in the weather, will but consult their Barometer daily, they will soon be sensible of the great advantages derivable from such practice.

It should be first be well understood that the principal criterion of the kind of weather to be expected is the relative motion of the mercury in the tube, and that its absolute height is only of secondary importance, when atmospherical changes are to be anticipated. The words engraved on the register-plate should not be much regarded, as they cannot always be relied upon to correspond with the state of the weather, and in fact, would show different indications at the top and bottom of a lofty house; but much greater dependence may be placed in the rising and falling of the mercury. For this reason the words are more deserving of notice when the mercury has just moved from "Changeable" upward or downward.

The absolute height of the mercury is a safe prognostic when it is unusually high or low, and the following observations upon it may frequently be found to be extremely serviceable:

1. All appearances being the same, the higher the Barometer is, the more likely is the weather to be fair. When the Barometer is high, it will be found that very dark and dense clouds pass completely over, and that there is very little probability of immediate rain.

2. When the Barometer is low, it sometimes rains almost without any appearance of clouds; and though the sky may seem to promise fair weather, it may be depended upon that the appearance will not continue long: the face of the sky changes very suddenly on such occasions.

Also, when the Barometer continues low, there is seldom much rain, though a fair day is very rare; the general character of the

weather at such times is short, heavy, and sudden showers, with squalls of wind from the W., N. W. or S. W.

3. The Barometer is highest of all during a long frost, with a N. E. wind; and it is lowest of all during a thaw following a long frost and accompanied by a S. W. wind.

4. In all places nearly on a level with the sea, rain may be expected when the mercury falls below 30 inches.

To judge rightly of the changes to be expected in the weather, we should especially ascertain whether the mercury is actually rising or falling. This will be always seen by regularly adjusting the index of the Barometer; or, we may observe—1. If the surface of the mercury be convex, standing higher in the middle of the tube than at the sides, it indicates the rising; if the surface be concave, it is falling; and if it appear level, the mercury is stationary. 2. If, on shaking or rapping the Barometer, the mercury ascends higher than it stood before, it indicates the rising; but if it descends, it indicates the falling.

The following rules have been laid down and amply confirmed by long-continued experience, and may be generally relied upon:

1. The rising of the quicksilver generally presages fair weather; the falling generally indicates rain, snow, and if the fall be great, high winds and storms.

2. When bad weather *quickly* succeeds the falling of the mercury, it will not be of long continuance. Similarly, when fair weather *soon* follows the rise of the quicksilver, we must not calculate on its continuance for any length of time.

3. On the contrary, if, in bad weather, the mercury rises considerably, and continues in an advancing state for two or three days before the fair weather sets in, we may expect a continuance of fair weather. And if, in clear weather, the mercury fall remarkably for two or three days together before the rain sets in, it is then highly probable that it will be succeeded by much rain, and perhaps high winds.

4. In winter, the rising indicates frost; and in frosty weather, if the mercury falls three or four divisions, there will certainly follow a thaw; but if it rises in a continued frost, it will always be accompanied with snow.

5. In hot weather, the sudden falling of the mercury portends thunder.

6. If the earth continues moist, and water stands in hollow places, no trust should be put in the clearest sky.

Of all persons, the farmer and the sailor are those who can generally, from constant observation, form the best judgment of the atmospheric indications of weather; but while

to the latter the Barometer is of the utmost importance in indicating that a sudden change is at hand; to the former it will be found equally useful, if he is a constant observer of it, by showing him, pretty accurately, whether or not any particular change of weather is likely to be of some duration.

SCIENTIFIC AGRICULTURE—BUYING LAND.

"You know very well," said Science, "how your neighbor, old Mr. Stubborn, went into the next State to buy a farm. The owner knew what the farm was, and advertised it in spring time, when he expected damp weather. I advised Peter to take me with him to view the strata of rocks below, and to analyze the soil on the surface; to see how it laid for draining, and what aspect it presented to the atmosphere. I told him I could save him my expenses many times over. But Peter scorned my advice—he thought he had worked more land than I had, and was as good a judge of land as any man in the States; and he set off, muttering something about 'not letting book-worms make money out of him.' He walked carefully over the farm—it looked green and flourishing, and not swampy, even in that damp, wet weather. He was delighted with it, and gave forty dollars an acre for over three hundred acres. He paid his twelve thousand dollars and took possession. But in the summer time as I passed that way, I found that so-much-praised farm almost burnt up with drouth, and its vegetation drooping and panting for moisture which the soil could not supply! Peter had bought a light, sandy soil, lying upon what we call, geologically, a coal formation, with a pretty decided slope eastward. I took a little bit of the soil, and analyzed it, and showed what it contained. In one hundred parts there were about eighty-three of lime, three of oxide of iron, one of potash, and one part of phosphoric and carbonic acids, and four parts of vegetable and

organic matter. 'Now,' I said, 'the soil will be beautifully productive in wet weather, but will be parched in dry weather.'

"Ah," he said, 'that was how I was taken in—I saw it in a wet spring season.'

"If," I rejoined, 'you had taken me with you, I would have taken a handful of this soil from various parts of the farm, and would have told you exactly what it contained, as I do now. I would have told you that sand, which predominates here, cannot retain moisture, which flies off; nevertheless, I would have told you that in certain positions the soil might be made fruitful, if it laid upon a faithful geological formation, and with a moist atmospheric aspect. I should then have examined the geological strata here, and have told you that it was on a coal formation, consisting of beds of limestone and blue shale, near the surface, which generally underlays the worst lands—and sloping so rapidly toward the east, the moisture would drain away through the sands and down the slope, while the east wind, the most drying and piercing of all winds, would blow with its keen, drouthy breath into the soil, driving out that moisture which had not drained away; that in summer your crops would be impoverished, and in long drouths probably would not grow at all. I could have shown you all this, and you would have known that the farm was of small value, and saved your money. Your ignorance has caused you to throw away as much as you have made in many years of hard work.'" [Sat. Courier.

HARVESTING-MACHINE.—A correspondent, writing from Michigan to the New-York Evangelist, says: "A field of sixty acres was harvested in two days, as follows: A machine was drawn into the field by sixteen horses, guided by as many boys as necessary. On the front of the machine a man was stationed to adjust the forks and circular knives to the height of the wheat, which was readily thrown back into the machine. No more was seen of it till another man in the rear part of the machine was observed tying up well-filled sacks of pure grain, in perfect order for the flouring-mill. This huge machine harvested and bagged three bushels of the best wheat in a minute."

BARRELS.—A machine has been invented, and is now in operation at New-Haven, and also in New-York, for dressing barrel-staves. It will make 7,000 such staves, or 4,000 hogsheaf staves, in ten hours.

SCRAPS.

ORIGIN OF FEEDING WITH OIL-CAKES.—The nutritive properties of oil-cake, which now forms such a prominent ingredient in the fattening diet of our finest sheep and oxen, and which till about 150 years ago was used as a manure on corn lands only, are said to have been discovered in the following singular manner: A farmer residing in the neighborhood of Chester, having been tempted by a favorable fair to purchase 40 more sheep than he could conveniently pasture through the winter, prevailed upon a neighboring tanner who also rented a little farm, to take them as out-door winter boarders. The sheep were accordingly sent, and turned into a ten-acre field, and when they had fed it down, thence into a twenty-acre piece, which the tanner had just dressed, by way of experiment, with oil-cake. In this piece the sheep lay about two months without having been seen by the farmer or the tanner. The animals were found to have eaten the manure, and had got very fat. Hence the origin of feeding on oil-cakes. [British Farmers' Almanac.

A NEW KIND OF CHEESE.—An esteemed friend, in whose *recipes* we have great confidence, has kindly furnished us with the following for making cheese: Boil good white potatoes, and when cold, peel and mash them till not a lump remains. To five pounds thus prepared, add a pint and a half of *sour* milk, and as much salt as may be deemed necessary to season the mass. Having worked it well let it be carefully covered from two to four days, according to the state of the weather; then work again, make the cheeses the size you like, *and then dry them in the shade*. After they have become sufficiently dry, place them in pots or pans, and let them remain a fortnight or more. In this way cheese of a most excellent quality may be made, and, what is of no small consequence, it can be kept for years without the slightest deterioration from the effects of age, provided it be kept dry. A friend who has had the pleasure of eating cheese prepared in this manner, speaks of it in high terms. [Maine Farmer.

HOPS.—The most ancient known account of the cultivation of hops has been discovered in France. Among the records of that Kingdom there is a patent of donation so far back as the reign of King Pepin, in which mention is made of "*humolaria*," which doubtless meant the hop-garden; and in 822, we find that the Abbot of Corby exonerated the millers within his district from all service regarding hops. From about that period the culture of this plant spread over Germany, and was even introduced into Sweden; but it is remarkable that so late as the 13th century, it was unknown in Italy, which we presume could scarcely have been the case had it been in use among the Romans. [British Farmers' Almanac.

FLAX.—A crop of flax exhausts the soil, as, being pulled, it leaves no stubble and roots to convey to the land the carbonic acid gas in the atmosphere; but if the steep-water and fibre were returned to the land, it might be converted into an ameliorating crop. [Brit. Farm. Alm.

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CATTLE SALE.—The following sale of Short-Horn cattle was made at Chillicothe on the 29th June, by Mr. Geo. Renick:

<i>Cows.</i>		<i>Heifers, three years old.</i>	
Donna Maria	\$95	Bloom	\$45
Lady Paley	87	Josephine	71
Poppy	82	Lucy	80
Red Rose	111	Twin	52
Rose of Sharon	97	Mate	35
Evening Star	120	Lady	80
Virginia	110	Dairy	55
Scioto	110	Venus	53
Maria	52	Beauty	75
Thames	120	Ten yearling heifers	
Miss Marshall	125	sold for the following	
Sandusky	60	prices: \$36, 41, 31, 30, 32,	
Duchess	81	50, 36, 30, 31, 43.	
Paint	73	<i>Bulls.</i>	
Laura	43	Prince Charles, three	
Lily	45	years old	
Flora	125	Albion, do	
Daisy	40	Farmer, two years old 30	
Blossom	54	Red Rover, one yr old 46	
Scippo	90	Five bull-calves sold	
Blanch	100	for \$36, 54, 59, 54, 30.	
Blink	90		

The foregoing animals were all thoroughbred, and most of them of highly improved pedigree. A number of grade cows, heifers, and calves, were included in the sale, and brought satisfactory prices.

The number of bidders present was respectable, though not as great as we expected to have seen, nor were the prices at which the cattle sold generally as high as we supposed stock of such pedigrees would bring; though much allowance must be made for the times. We believe Mr. Renick is not at all disappointed with the result of the sale. He offered his whole herd, only reserving the right of six bids. He only bought five animals, and there were none bid in for him, though a number were bought by relations of his name, who are also amateurs of fine cattle.

LIME IN PLANTING TREES.—In setting, we usually put a small quantity of lime in the hole—about half a peck to a tree—mixing it thoroughly with the mould, in order that it may be easily accessible to the roots, which ramify in every direction in quest of food. An English publication says that an extensive plantation of trees has been formed within a few years, without the loss of a single tree, and has been effected simply by putting a small quantity of lime in the hole before depositing the tree. Four bushels are said to be amply sufficient for an acre. The effect of the lime is "to push on the growth of the plant in the first precarious state." There seems to have existed, at first, an apprehension that liming the tree would force it on prematurely, but this apprehension experience has demonstrated to have been perfectly groundless.

NIGHTSOIL.—The business of collecting urine and nightsoil employs an immense number of persons in China, who place tubs in every house in cities for receiving the urine of the inmates, which vessels are removed daily with as much care as our farmers remove the litter from the stables.

TO MAKE EGG PONE.—Beat until light one egg; add a pint of milk, half a tea-spoonfull of salt, half a table-spoonfull of lard, and one pint of corn-meal. Stir until perfectly smooth; grease well the pan, and bake three-quarters of an hour. *Corn bread* requires much stronger heat than *wheat*.

This same mixture baked on a griddle gives us the batter-cakes, with the addition of more milk, making the mixture thin, to bake which successfully, the griddle must be *hot*; grease it and put a spoonfull in a cake.

EFFECT OF VARIOUS MANURES ON WHEAT.—Wheat grown in a field manured with cow-dung yielded in 100 parts only 12 parts of gluten; whereas, 100 parts grown on land manured with human urine yielded 35 parts, arising from the different quantities of ammonia contained in the manures. The following Table exhibits the various substances contained in wheat on which nitrate of soda was used, and on which nitrate was not used:

	Used.	Not used.
Bran	25	24
Gluten.....	23½	19
Starch.....	49½	55½
Albumen.....	1½	2½
Extract, loss, and water..	1	2
Total.....	100	100

POTASH.—The following Table contains a statement of the quantity of potash contained in 10,000 parts of some of the common trees and plants:

Oak.....	15	Poplar.....	7	Wormwood.....	730
Elm.....	39	Thistle.....	55	Vetches.....	275
Beech.....	12	Fern.....	62	Beans.....	200
Vine.....	55	Cowthistle.....	196	Fumitory.....	790

LIME.—The following method of using lime stands so high in our estimation that we repeat it every year:

Break the stones small before being put into the kiln to be burnt, and not larger than a goose's egg; lay them in a hot state on the land, which should be in a half-wrought condition; spread out the lime shells very evenly; the subsequent operations of plowing and harrowing, not less than twice performed, will cover and distribute the lime, and the land will be benefited by the moist heat and damp exhalations that will be evolved during the dissolution. This is by far the most preferable mode of using lime that is yet known. [British Farmers' Almanac.]

ENGLISH GOVERNMENT PRICES FOR PROVISIONS.—The Government of Great Britain, in October, 1846, contracted for the following provisions at the annexed prices: say 18,000 tierces of pork at the average price of £7 11s. 2d. per tierce of 400 lbs., equal to 36,000 barrels of 200 lbs.—reduced to our money, say \$4 80 per pound sterling, is at par \$18 12 per barrel of 200 lbs. Also for 8,000 tierces of beef at the average price of £7 3s. 3½d. per tierce of 400 lbs., equal to 16,000 barrels of 200 lbs.—equal, in our money, to \$17 19 per bbl. A tierce of beef or pork is 400 lbs. net of meat; a pound sterling is \$4 80 at the Custom-House.

"KING OF VERMONT"—A Merino ram owned by General Rawson Harmon, of Wheatland, N. Y. Said buck is a pure descendant of the Spanish Merinos imported in 1812. He was bred by S. W. Jewett, Weybridge, Vt., and got by his buck "*Fortune*." He dropped in April, 1845; in December, same year, tupped over 80 ewes; was wintered on hay and roots; was

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washed and sheared by Mr. Harmon in June last; his fleece weighed nine pounds! and the buck over 100 pounds; he will now weigh 130 pounds. General Harmon has a flock of over one hundred pure Merinos.

THE HORSE.—I will state a few things that I have learned, and they may be of benefit to your readers. A horse that is driven on hard roads is liable to get stiff in the joints. In 1833 I had an animal which after driving 3 or 4 days, got quite lame. An old Baltimore teamster told me to wash the mare's legs in a tolerably salt brine, which was done, accordingly, three times a day for the balance of the journey. The stiffness disappeared in a few days, and I drove the mare 1,400 miles afterward, and there was no more trouble on that account. What pleased me most was, the mare had a very poor foot to hold a shoe, when I started. It was very brittle and hard. It would break out when a nail was put in. But it grew together at every shoeing. A blacksmith in New-England remarked to me that her foot had a singular appearance; where he pared it was soft and tough. I account for it in this way; salt will attract moisture from the atmosphere, which keeps the foot moist all the time; and salt has nearly the same effect that grease has on a foot or a piece of timber. The drippings from salt on a floor if continued long, cannot be got off; the wood becomes moist and tough, and so with a horse's foot. After washing the legs, turn up the horse's foot, clean the bottom, pour the hollow full of brine and hold for a few minutes to soak the bottom. The practice of rasping the foot all over to toughen it is abominable. [Farmer and Gardener.]

QUANTITIES OF SEED SUITED FOR A COTTAGE GARDEN.—Allowing for loss or accident in garden seeds, we believe the following quantities for sowing a common cottage garden to be nearly correct:

One pint of peas will sow fourteen yards of drill; one pint of beans will sow twenty-two yards of drill; one ounce of onion-seed will sow ten square yards; one-half ounce of leek-seed will sow six square yards; one ounce of carrot-seed will sow ten square yards; one ounce of parsnip-seed will sow twelve square yards; one-half ounce of cabbage-seed will sow three or four square yards.

GREASING CARRIAGE-WHEELS.—The best composition that can be prepared to relieve carriage-wheels and machinery from friction, is composed of hog's lard, wheat-flour, and black lead (plumbago.) The lard is to be melted over a gentle fire, and the other ingredients—equal weight—may be added, till the composition is brought to a consistency of common paste, without raising the heat near the boiling point. One trial of the paste will satisfy any one of its superior utility. [Exchange paper.]

Unusually large breadths of corn have been planted this spring, and our supply of *Poudrette* fell greatly behind the demand. We regret that so many should be disappointed and unable to obtain it. We began the season with a large stock on hand, but it was exhausted toward the close of last month. We are now, however, prepared to meet any calls. The *poudrette* has been heretofore considerably used, and to good purpose, to put around the corn-hills just previous to the first harrowing or plowing, when it can be covered from the sun.

THE PERIODS OF PREGNANCY IN DIFFERENT ANIMALS.

KINDS OF ANIMALS.	Proper time for reproduction.	Period of the power of reproduction.	Number of females for one male.	The most favorable season for copulation.	Period of gestation and incubation.		
					Shortest period.	Mean period.	Longest period.
	Yrs. Mos.	Years.			Days.	Days.	Days.
Mare	4 0	10 to 12	20 to 30	May	322	347	419
Stallion	5 0	12 to 15					
Cow	3 0	10		July	240	283	321
Bull	3 0	5	30 to 40				
Ewe	2 0	6			146	154	161
Tup	2 0	7		Nov.			
Sow	1 0	6	6 to 10	March	109	115	143
Boar	1 0	6					
She-goat	2 0	6		Nov.	150	156	163
He-goat	2 0	5	20 to 40				
She-ass	4 0	10 to 12		May	365	380	391
Male-ass	5 0	12 to 15					
She-buffalo					281	308	335
Bitch	2 0	8 to 9	30	* Feb.	55	60	63
Dog	2 0	8 to 9					
Doe rabbit	0 6	5 to 6		Nov.	20	28	35
Buck rabbit	0 6	5 to 6					
Cock	0 6	5 to 6					
Turkey sitting on eggs of—							
Hen					17	24	28
Duck					24	27	30
Turkey					24	26	30
Hen sitting on eggs of—			3 to 5				
Duck					24	30	34
Hen							
Duck					28	30	32
Goose					27	30	33
Pigeon					16	18	20
She-cat	1 0	5 to 6			48	50	56
He-cat	1 0	9 to 10	5 to 6				

ANALYSIS OF WHEAT.

The following Table exhibits the results of Fourcroy and Vauquelin's analysis of different kinds of Wheat:

NAMES.	Moisture.	Gluten.	Starch.	Sugar.	Gum.
Gross flour of wheat	10	10·96	71·49	4·72	3·32
Flour of maslin, wheat, and rye	6	9·80	75·50	4·22	3·28
Gross flour of Odessa, hard wheat	12	14·55	56·50	8·48	4·90
Do. soft wheat	10	12·00	62·00	7·36	5·80
Do. second quality	8	12·10	70·84	4·90	4·60
Do. seconds	12	7·30	72·00	5·42	3·30
Flour of the Parisian bakers	10	10·20	72·80	4·20	2·80
Do. second quality	8	10·30	61·78	4·80	3·60
Do. third quality	12	9·02	71·20	4·80	4·60

FAT AND MUSCLE PRODUCED FROM AN ACRE.

SUBSTANCES.	Produce per acre.	Weight of grain per bushel.	Weight of gluten, albumen, and casein.	Weight of starch, gum, sugar and fat.	Weight of water per acre.
Field beans	25 bush.	64 lbs.	450 lbs.	672 lbs.	256 lbs.
Peas	25 ..	66 ..	380 ..	845 ..	208 ..
Oats	50 ..	49 ..	290 ..	1,168 ..	336 ..
Hay	3 tons.		480 ..	2,790 ..	752 ..
Potatoes	12 ..		600 ..	3,330 ..	20,250 ..
Carrots	25 ..		1,120 ..	5,800 ..	47,600 ..
Turnips	30 ..		800 ..	6,700 ..	56,950 ..
Wheat straw	3,000 lbs.		40 ..	940 ..	450 ..
Oat straw	2,700 ..		36 ..	970 ..	324 ..
Barley straw	2,100 ..		28 ..	646 ..	252 ..

TRENCHING.

TRENCHING is one of the readiest modes in the gardener's power for renovating his soil. The process is thus conducted :

"From the end of the piece of ground where it is intended to begin, take out a trench two spades deep and twenty inches wide, and wheel the earth to the opposite end, to fill up and finish the last ridge. Measure off the width of another trench, then stretch the line and mark it out with the spade. Proceed in this way until the whole of the ridges are outlined, after which begin at one end and fill up the bottom of the first trench with the surface or 'top spit' of the second, then take the bottom 'spit' of the latter, and throw it in such a way over the other as to form an elevated, sharp-pointed ridge. By this means a portion of fresh soil is annually brought on the surface to the place of that which the crop of the past season may have in some measure exhausted."

[Gard. Chron.]

BASTARD-TRENCHING is thus performed :

"Open a trench two feet and a half or a yard wide, one full spit, and the shoveling deep, and wheel the soil from it to where it is intended to finish the piece ; then put in the dung, and dig

it in with the bottom spit in the trench ; then fill up this trench with the top spit, &c., of the second, treating it in like manner, and so on. The advantages of this plan of working the soil are, that the good soil is retained at top—an important consideration where the subsoil is poor or bad,—the bottom soil is enriched and loosened for the penetration and nourishment of the roots; and, allowing them to descend deeper, they are not so liable to suffer from drouth in summer; strong soil is rendered capable of absorbing more moisture, and yet remains drier at the surface by the water passing down more rapidly to the subsoil, and it insures a thorough shifting of the soil."

[Gard. Chron.]

In all trenching, whether one, two or more spades deep, always, previous to digging, put the top of each trench two or three inches deep or more, with all weeds and other litter, at the bottom of the open one, which not only makes clean digging, and increases the depth of loose soil, but all weeds and their seeds are regularly buried at such a depth that the weeds themselves will rot, and their seeds cannot vegetate.

PRICES CURRENT.

[Corrected, July 21, for the Monthly Journal of Agriculture.]

ASHES—Pots, 1st sort.....	100 lb.	4 87½ @ —	Staves, White Oak, pipe, Φ M....	50	@ —
Pearls, 1st sort, '46.....	6	12½ @ —	Staves, White Oak, hhd.....	40	@ —
BEESEWAX—American Yellow	—	@ — 25	Staves, White Oak, bbl.....	30	@ —
CANDLES—Mould, Tallow.. Φ lb.....	—	10½ @ — 12	Staves, Red Oak, hhd.....	24	@ 28 —
Sperm.....	—	30 @ — 31	Hoops.....	20	@ 30 —
COTTON—From..... Φ lb.....	—	10½ @ — 14	Scantling, Eastern.....	16	25 @ 22 50
COTTON BAGGING—American.....	—	@ —	Scantling, Oak.....	30	@ 35 —
CORDAGE—American..... Φ lb.....	—	11 @ — 12	Timber, Oak..... Φ cubic foot	—	25 @ — 30
DOMESTIC GOODS—Shirtings, Φ y.....	—	5 @ — 11	Timber, White Pine.....	18	@ — 25
Sheetings.....	—	6½ @ — 15	Timber, Georgia Yellow Pine	—	28 @ — 32
FEATHERS—American, live.....	—	27 @ — 30	Shingles..... Φ bunch	1	75 @ 2 25
FLAX—American.....	—	7½ @ — 8½	Shingles, Cedar, 3 feet, 1st quality.	26	@ 30 —
FLOUR & MEAL—Genesee, Φ bbl.	5	25 @ —	Shingles, Cedar, 3 feet, 2d quality.	24	@ 28 —
Troy.....	—	@ —	Shingles, Cedar, 2 feet, 1st quality.	18	@ 22 —
Michigan.....	5	@ 5 12½	Shingles, Cedar, 2 feet, 2d quality.	16	@ 20 —
Ohio, Flat Hoop.....	5	@ 5 12½	Shingles, Cypress, 2 feet.....	15	@ 18 —
Ohio, Round Hoop.....	—	@ —	Shingles, Company.....	35	@ 38 —
Ohio, via New-Orleans.....	—	@ —	MUSTARD—American.....	—	@ —
Pennsylvania.....	—	@ —	NAILS—Wrought, 6d to 20d... Φ lb.	10	@ — 14
Brandywine.....	—	@ —	Cut 4d to 40d.....	4	@ — 4½
Georgetown.....	5	50 @ 5 75	PLASTER PARIS— Φ ton.....	2	25 @ 2 50
Baltimore City Mills.....	—	@ —	PROVISIONS—Beef, Mess, Φ bbl..	13	@ 13 50
Richmond City Mills.....	—	@ —	Beef, Prime.....	9	25 @ 9 50
Richmond Country.....	5	@ 5 25	Pork, Mess, Ohio, new.....	14	75 @ 14 87½
Alexandria, Petersburg, &c.....	5	@ 5 25	Pork, Prime, Ohio, new.....	12	@ —
Rye Flour.....	3	75 @ —	Lard, Ohio..... Φ lb.	—	9½ @ — 10½
Corn Meal, Western and Jersey..	2	75 @ 3 25	Hams, Pickled.....	7½	@ — 8½
Corn Meal, Brandywine..... pun.	—	@ —	Shoulders, Pickled.....	6	@ — 6½
GRAIN—Wheat, White..... Φ bush.	1	15 @ 1 25	Sides, Pickled.....	—	@ —
Wheat, Red and mixed.....	1	@ 1 10	Beef, Smoked..... Φ lb.	11	@ —
Rye, Northern.....	—	77 @ — 78	Butter, Orange County Dairy	18½	@ —
Corn, Jersey and Northern yel...	—	60 @ — 62	Butter, Western Dairy.....	13	@ — 15
Corn, Southern, yellow.....	—	@ —	Butter, Grease.....	—	@ —
Corn, Western, yellow.....	—	58 @ — 60	Cheese, in casks and boxes.....	6	@ — 7½
Oats, River and Canal.....	—	38 @ — 40	SEEDS—Clover..... Φ lb.	6	@ — 7
Oats, Jersey.....	—	@ —	Timothy..... Φ tierce	12	@ 16 —
HAY—North River in bales, Φ 100 lb.	—	40 @ — 45	Flax, Rough.....	9	50 @ —
HEMP—American, dew-rotted... ton	100	@ 110 —	SOAP—N. York, Brown..... Φ lb.	—	3½ @ — 5½
" " water-rotted.....	175	@ 200 —	TALLOW—American Rendered	9	@ — 9½
HOPS—1st sort 1846.....	—	10 @ — 12	TOBACCO—Virginia..... @ lb.	—	3 @ — 7½
IRON—American Pig, No. 1.....	25	@ 32 50	North Carolina.....	—	@ —
" " Common.....	25	@ 27 50	Kentucky and Missouri.....	3	@ — 7½
LIME—Thomaston..... Φ bbl.	—	65 @ — 70	WOOL—Am. Saxony, Fleece, Φ lb.	—	40 @ — 45
LUMBER—Boards, N.R., Φ M. ft. chr.	35	@ 40 —	American Full Blood Merino	35	@ — 38
Boards, Eastern Pine.....	—	@ —	American ½ and ¾ Merino.....	30	@ — 34
Boards, Albany Pine..... Φ pce.	—	12 @ — 21	American Native and ¾ Merino...	26	@ — 28
Plank, Georgia Y. Pine. Φ M. ft. .	27	50 @ —	Superfine, Pulled Country.....	32	@ — 34

